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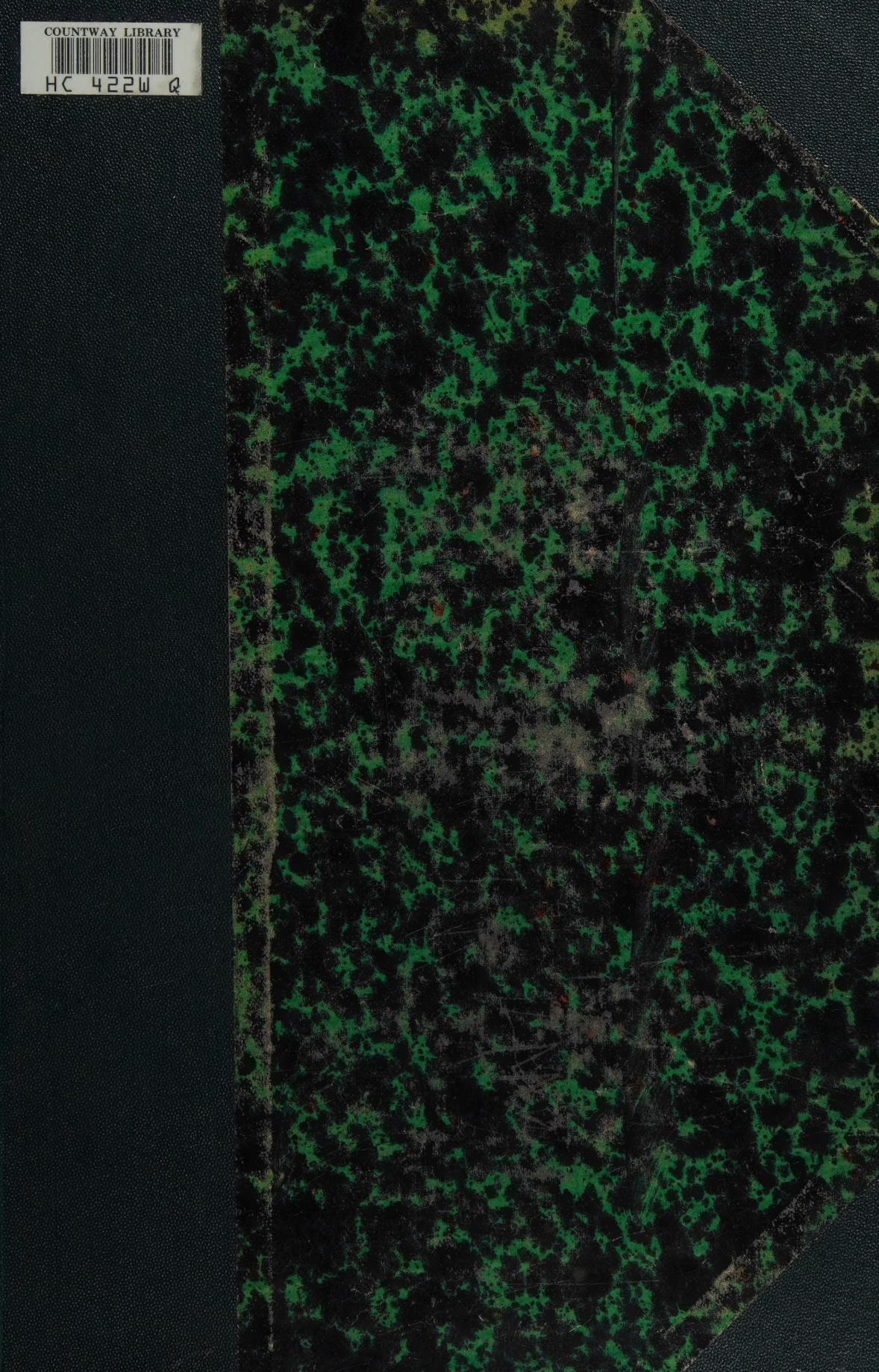

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AND

MEDICAL BULLETIN

(CONSOLIDATED)

VOL. II.

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Original Articles

Department in charge of J. MADISON TAYLOR, A.M., M.D.

PRACTICAL SUGGESTIONS IN THE ADMINISTRATION OF TUBERCULIN, TOGETHER WITH A DISCUSSION OF THEORY UPON WHICH ITS ACTION IS BASED.[1]

BY F. M. POTTENGER, A.M., M.D.
MONROVIA, CALIFORNIA.

THE term tuberculin, as it was originally applied, meant the culture fluid upon which tubercle bacilli had been artificially grown, concentrated by heat to one-tenth of its original quantity after the bacilli had been removed by careful filtration. This was Koch's lymph. It was given to the world in 1890, and almost lost to the world at the same time. Except by a few, who saw its virtues in spite of its reckless employment, it was cast aside as one of the greatest therapeutic failures of the age; and the name of Robert Koch who, because of his great contributions to modern science can claim the distinction of being the world's greatest physician and humanity's greatest benefactor,[2] was for the time coupled with failure and dishonor. Koch had not failed; but the medical profession had failed to grasp the nature of his

1 Read by invitation before the Homœopathic Medical Society of the County of New York, New York Academy of Medicine, October 8, 1908.

2 The editors cannot sustain the claim of their distinguished contributor that Koch occupies so exalted a position in the Annals of Medicine. Had Pasteur never existed, Koch, Lister and many other modern celebrities would never have become such. Koch is a brilliant bacteriologist and a great benefactor in the field of tuberculosis, but Pasteur is by far "humanity's greatest benefactor."—ED.

remedy and failed to follow his instructions, and, as a result, misfortune followed.

A few cautious workers continued the employment of the remedy in spite of its apparent failure, and, after a few years, were able to report to the world that tuberculin is of value, and to-day it is all but universally recognized by those who are treating tuberculosis.

Aside from the original tuberculin there have been many other preparations made; Koch himself has given us two: T. R., which contains those toxins of the tubercle bacillus which are not readily soluble in distilled water, and T. E., which is an emulsion of dead tubercle bacilli.

The watery extract of tubercle bacilli, von Ruck, is made by pulverizing the bodies of the bacilli in an agate mortar and extracting them with distilled water after the fats have first been removed by extraction with alcohol and ether.

Denys' tuberculin is the filtered broth upon which the bacilli have been grown, and differs from Koch's old tuberculin in that it has not been subjected to heat.

Beraneck's tuberculin contains both the soluble toxins which will yield readily to distilled water, and the insoluble ones which he extracts by means of orthophosphoric acid.

C. Spengler has also produced several preparations which are made from both the bovine and human type of bacillus.

The term tuberculin has now come to mean any preparation made from the culture fluid on which tubercle bacilli grow or any preparation made from the bacilli themselves. Unless this is understood much confusion will arise, for the preparations vary a great deal in their dosage, and somewhat in their action. All are of value in the treatment of tuberculosis, although different clinicians have their own special preferences, sometimes depending on their conception of the action of the different preparations, and sometimes depending on the fact that they know one better than the others. Tuberculin is very often erroneously spoken of as a serum. Serums are those products which are made from the serum of animals which have been subjected to doses of some of the products of the tubercle bacillus, and so far have not found a very extensive use in the treatment of tuberculosis. There should be no confusion between tuberculin and serums. They are entirely different products.

The question arises, what claim has tuberculin to therapeutic consideration? To answer this question, we must discuss the nature of cure in tuberculosis.

Tuberculosis is an infectious disease, and like all infectious diseases, its cure consists in establishing immunity on the part of the afflicted organism to the infecting germ and its toxins. This is what always occurs if a cure results.

The meaning of cure can best be studied by recalling the phenomena which take place at the time of infection. The animal organism is naturally endowed with resistance or protective substances which ward off infections by various micro-organisms. If we consider tuberculosis, the following is what

happens when bacilli gain entrance into the tissues. If they are few in number they are acted upon by the protective substances of the blood and destroyed. It is very important to know, however, that when these protective substances act upon the bacilli, they themselves are used up, and for the time the organism is left with its defensive forces weakened. But this does not last long if the cells of the organism are able to react, for the bacilli undergo destruction, liberate their toxins, which are nothing more than tuberculins, and these stimulate the body cells to the production of more protective substances; thus the defensive forces of the body are again renewed ready for the next attack.

Now let us go a step further and suppose that the number of the infecting micro-organisms or their virulence is such that, for the time being, the protective forces of the body are overcome and an infection results. Whether or not it will heal and a cure be brought about, or whether it will spread, depends on whether the organism will produce sufficient protective bodies to destroy the bacilli contained in the focus of disease and those which attempt to invade new tissues.

Thus it can be seen that there are two factors in cure, the cells and the stimulating toxin. If the cells should fail to respond in the production of protective substances, no matter how much toxin is present, the infection would not heal; and if the toxin is wanting, we must conceive of the cells lacking the stimulus necessary for their excitation.

In treating tuberculosis, then, the indications are for first keeping the body cells in such a state of health that they will respond to stimulation when the proper toxins are thrown into the tissues; second, if for any reason the toxin from the focus of infection fails to cause the necessary stimulation, it must be supplied artificially. The latter we are attempting to do when we use tuberculin therapeutically.

But the question must still be answered, why is there not sufficient tubercle toxins always present to stimulate the cells?

The answer must lead us, in part, into theorizing. In a latent focus we can understand how the toxin would fail to be thrown out, but in active foci where toxins are being continuously elaborated, we must assume that large quantities are being brought into contact with the body cells more or less constantly. In such cases, however, we know that the artificial injection of tuberculin will improve the case; therefore, we assume that the effect of the toxin is spent on the cells at the seat of the infection, and that they are so injured that they fail to respond, and that when the toxin is artificially introduced into the tissues at a distance from the focus of disease, the local cells around the site of injection produce the protective substances.

Based upon this somewhat technical but necessary discussion, we have a foundation not only for tuberculin therapy, but we have an explanation of the principles which underlie all therapy in tuberculosis. We can see that the scientific treatment of tuberculosis consists in both building up and strengthening the body cells by bringing the afflicted individual to the highest state of physical strength consistent with his condition, to which end such well-recognized measures as open air, good food, hydrotherapy, rest, change of

environment, climatic change and suitable tonics have been directed; and artificially supplying the toxin necessary for the stimulation of the cells, so that they will respond in the production of the specific protective substances which are necessary to the cure, to which end tuberculin is successfully employed.

It seems folly, then, to speak of the tuberculin treatment, or the open air, or dietetic, or hydrotherapeutic treatment of tuberculosis, because no treatment is complete without both factors. The tuberculin may not be administered artificially, reliance may be placed in the supply furnished by the focus of infection; but tuberculin, furnished somehow, is an important, if not absolutely necessary, factor in the cure. On the other hand, patients may get well without any tonic measures being applied, yet we all recognize how much better the chances are when such measures are applied.

Those who would treat so complex a disease as tuberculosis should not become faddists. They need the constant presence of a good balancing wheel. They should learn first what they are attempting to do, then keep that constantly in mind. If they do this, they will not go far wrong. They will not use one measure to the exclusion of others, but they will see that the most successful results can be obtained only by a careful combination of various measures, and especially of tuberculin combined with general tonic measures.

The next practical question to be answered is, how shall tuberculin be administered? I would first call attention to the fact that tuberculosis heals slowly; even what appears on physical examination to be a very slight lesion requires from four to six months to heal. Therefore, if one will judge whether or not tuberculin is helping his patient, he must be able to examine the chest with a fair degree of skill, and to recognize slight changes that occur. I deem a careful charting of the chest once a month, with a comparison of findings as necessary in tuberculin treatment. If one is not able to examine with such skill, he will have to depend on the general condition of the patient to guide him in his therapy. I will say, however, that this is unsatisfactory and liable to lead to error.

Whoever would employ tuberculin should be thoroughly conversant with its action. He should know the symptoms which it will produce when administered in various doses. He should also know that the symptoms produced by a dose of tuberculin are almost identical with those produced by activity in a tuberculous focus; therefore, in treating cases which are at all active, careful discrimination is often necessary in order to determine whether the symptoms produced are those of a tuberculin reaction due to the dose administered therapeutically, or whether they are due to the activity of the disease process. One must remember that tuberculosis runs an uneven course, now quiescent for a time without symptoms and with steady temperature, and then active with symptoms and variable temperature. If such a patient is receiving therapeutic doses of tuberculin all such symptoms must not be attributed to the remedy. On the other hand, if produced by it, the fact must be recognized and the dosage modified or withheld, so that no harm will be done.

Recognizing this character of active tuberculosis, those who are beginning

the use of tuberculin should avoid such cases, and treat only early cases which are showing no active signs. Not until thoroughly conversant with the remedy should the treatment of the more advanced cases be undertaken. I am not an advocate of the idea that tuberculin is applicable only in incipient or early inactive tuberculosis, but I am thoroughly convinced that it is relatively of much greater value to the patient in more advanced cases where ordinary hygienic measures so often fail; but I feel that I cannot impress too strongly the advisability, I might say the absolute necessity, of those who are beginning the use of the remedy confining their efforts to early non-active cases.

When it has been determined to treat a given patient with tuberculin, the first thing the physician should do is to make a thorough examination, recording his findings carefully, as mentioned above. He should then keep the patient under observation for a period of three or four days, and have him keep a two-hourly chart of his temperature and pulse. The amount of cough, sputum, the condition of the patient's appetite, and his weight should also be noted.

This preliminary period of observation is very important, for it enables the physician to become acquainted with the patient and his disease, and furnishes a period without treatment which can be compared with that after treatment has begun.

As to the particular preparation to be employed, I shall only say that all are of value, and leave the choice to the physician.

It is impossible to suggest the beginning dose, because it varies with the preparation and the condition of the patient. No amount can be established as an initial dose to be used in all cases, nor can any given scheme of increase or spacing of doses be given. In the administration of tuberculin, above all other remedies, we must individualize. The dosage is given entirely according to the patient. It is important to make the initial dose so small that there is no likelihood of a reaction occurring; for example, if we were going to treat an early non-active case with Koch's old tuberculin we could give as the first dose $\frac{1}{10}$ of a milligram, or, if we chose to use T. R., we could begin with $\frac{1}{1000}$ or $\frac{1}{10000}$ of a milligram of the solid substances, which would be (remembering the product as sold to the trade represents one per cent. of solid extract of tubercle bacilli) $\frac{1}{10}$ or $\frac{1}{100}$ of a milligram of the original solution.

The increase of dosage after the initial injection has been given is important. Experience seems to show that very small doses with too long intervals between them is a factor in producing a hypersensitiveness on the part of the patient; therefore, it seems best to give the small dose, and if there is no indication of reaction, to increase the amount at each succeeding dose until the point of reaction is found.

Two days is a very common interval between the smaller doses; this to be lengthened to three, four, or a week, and even a month as the doses become larger. The amount can be increased according to the patient, the preparation and the initial dose from $\frac{1}{10}$ to twice or even ten times the previous dose. This is a common scheme for old tuberculin: Initial dose $\frac{1}{10}$ milligram, then following with two-day intervals as near as allowable with one milligram, two

milligrams, three milligrams, four milligrams, five milligrams, etc., providing no symptoms of reaction occur.

I have cautioned against a reaction. A tuberculin reaction is that group of symptoms which is produced by the toxins made from the tubercle bacillus when acting upon the organism. These symptoms vary according to the amount of tuberculin employed and the tolerance of the individual.

The therapeutic effect of tuberculin is obtained short of any unpleasant subjective or objective signs or symptoms. It consists in a stimulation of the physiological process of immunity. The body cells are confronted by a toxin, and if the dose be suitable they respond by the production of immunizing bodies; and, according to nature's law, not only do they produce sufficient to overcome the injected toxin (tuberculin), but they produce an excess which goes to protect the organism against the toxins produced in the focus of disease. This is the aim of therapy, and it is accomplished short of toxic symptoms. The patient often notes a feeling of well-being and an improvement in his general condition coincident with the proper administration of tuberculin.

If the dose be in excess of the amount necessary for the proper stimulation of the body cells, toxic symptoms manifest themselves, and we have what is known as a tuberculin reaction. This manifests itself in several ways, and appears, as a rule, from four to twenty-four hours after the injection; first, there may be a slight infiltration at the point of injection; second, there may be certain subjective symptoms, varying with the dosage, such as slight nervousness or languor, if the toxic effect is slight, and aching of the head, back and limbs if it is greater, and even nausea, vomiting and severe prostration when pronounced; third, there is a local hyperæmia or congestion caused at the seat of the tuberculous infection which may be seen when the lesion is visible, as in the larynx, or may be detected by careful auscultation by an expert examiner when the lesion is in the lungs; fourth, a rise of temperature which may show as a rise of a few tenths of a degree with only slight or no subjective symptoms, or it may rise to 102 or even higher, and may be accompanied by severe constitutional symptoms. Such temperature reactions are rarely obtained at the hands of those who are conversant with the use of tuberculin, and should be avoided.

The symptoms of a reaction will usually disappear in from twenty-four to seventy-two hours, although occasionally a reaction will last for several days.

No further dosage should be administered as long as signs of a reaction are present. And it is wise to wait until two or three days have elapsed after all signs of reaction have passed away before administering another dose. It is not wise to increase the dosage after a reaction until the dose which caused it fails to produce signs of reaction, and it is often best to reduce the first dose after a reaction.

Tuberculin should be administered hypodermically. The site of the injection should be cleansed by careful washing, either with alcohol or ether, and the syringe and needle should be handled with the usual antiseptic precautions.

The injections should be made preferably subcutaneously and not deep into the tissue. This affords opportunity for watching the local reaction at

the point of injection. I prefer the extensor surface of the forearm because of its convenience, although the region of the triceps, the loins or the back may be used.

Tuberculin must not be looked upon as a sure cure for tuberculosis, neither must it be expected to remove the dead and dying tissue which is always present in advanced cases. It is, however, nature's own remedy for tuberculosis. It is what she uses to stimulate the defense of the organism. If we use it intelligently we can supplement nature and greatly fortify her in her struggle against the tubercle bacillus; but with it we must employ measures directed toward building up and strengthening the patient.

SOME REFLEX NEUROSES CURED BY TREATMENT OF CO-EXISTENT NASAL AFFECTIONS.

By MARGARET F. BUTLER, M.D.,

Clinical Professor of Rhinology and Laryngology, Woman's Medical College of Pennsylvania; Laryngologist to the Woman's Hospital of Philadelphia.

The following cases are reported, not because they are unique nor of unusual interest, but, for the reason, that all had undergone long courses of treatment without the nasal origin of the disease having been suspected. To the rhinologist such cases are of frequent occurrence, but there must be a few practitioners who slight the nose and throat as factors in the physiological economy. I have an acquaintance, a woman of about fifty-five years, who has been an invalid all her life on account of asthma, and she is a marked victim of aprosexia. She has been under the constant care of a physician of the highest standing in his school. She has never breathed through her nose, she does not know that she should breathe through it, and her speech indicates that there is partial or complete nasal obstruction. Notwithstanding all these signs, a nasal examination has never been suggested.

I have in mind a case of facial chorea in a child eight years old, in which at least two physicians have recommended that she be "saved from jars," with the hope that she would grow out of the habit. The faucial tonsils almost meet in the middle line, yet this throat condition has been given no consideration as an etiological factor in the disease.

Doubtless there has been considerable reaction from the enthusiasm of the time to which Michael refers in his lines written in 1890,

> "Dann wird die Nase ausegebrannt,
> Denn das hilft immer wie bekannt,"

yet it is possible to give too much importance to the theory of lowered nerve resistance and a neurotic habit of the patient in symptoms which have become so-called "constitutional." I have not found the victims of these reflex symptoms of an especially nervous type, but most of them were exhausted from the long-continued suffering.

Unless it be in the eye, there is probably no other mucous membrane in the body in which the reflex tendency is more conspicuous than in the nose. It is only necessary to touch certain hyperæsthetic areas very lightly to elicit such reflex phenomena as sneezing, coughing, lachrymation, pain in the ear, etc. Momentary cessation of respiration and of the heart's action may be caused by irritation of the nasal fossæ. A few of the reflex neuroses of nasal origin given by various authors are lachrymation, discomfort in the eyes, glaucoma, hay fever, enuresis, chorea, headache, trigeminal neuralgia, spasm of the fauces and laryngismus stridulus.

The book by Dr. A. Kuttner, of Berlin, entitled "Die nasalen Reflexneurosen und die normalen Nasenreflexe," is a very comprehensive contribution on this subject. His catalogue of the literature is quite extensive.

I shall report, briefly, a few illustrative cases that have come to my attention:

Case I.—Mrs. S. P., age thirty-two years, a resident of one of our southern States, was brought to my office in the fall of 1905, complaining of pain in her left ear, which had persisted with but slight intermission for two years. The ear ached constantly, and the pain increased on yawning, eating or singing high notes. The trouble had originated in the following manner: The patient had been in a hospital six weeks for an appendectomy. Five days after returning home she was awakened in the night by a sharp pain in the left ear. She was referred to an ear specialist in her home town, who treated her for catarrh of the ear, but the pain was not relieved. When I examined her I found the drumhead of the affected side normal in appearance, the tests for hearing gave no indications of middle nor inner ear disease, there was no tenderness over the mastoid, and the teeth were in good condition. Examination of the nose, however, showed the middle turbinal of the side corresponding to the affected ear pressing against the septum, the contact extending well back toward the sphenoid. There was no indication of any involvement of the accessory sinuses. I asked Professor B. Alexander Randall to see the case, and he advised removal of the intra-nasal pressure. The middle turbinal was removed its entire length, and the patient was relieved almost immediately.

Case II.—Mr. C. B., age forty-five years, came to my office in November, 1906, complaining of sneezing and lachrymation. The symptoms were limited to the right side of the nose. The history showed that he had suffered since about twelve years of age with frequent headaches, limited to the right supra-orbital and temporal regions. Several noted ophthalmologists of London had examined his eyes, but he had received no relief. There was a history of a gun-shot wound near the right eye, and it was supposed that a grain of shot might have lodged somewhere in the deep tissues, but no attempt had been made to discover it. Lately the supra-orbital pain has become so much worse as to be almost unendurable. On examining the nose I found the upper part of the septum in the right fossa flexed sharply, pressing upon the middle turbinal. The frontal sinus was found free from disease. The deviated septum was straightened by submucous resection of the crooked bone and cartilage, and the attacks of headache and catarrh ceased.

Case III.—Miss C., age about twenty-three years, had suffered for five years with an intense supra-orbital neuralgia on the left side. In my estimation she could not have been considered of a nervous type. She had taken a great deal of medicine; indeed, had been under constant treatment for the neuralgic trouble with no relief. Finally, a choroiditis developed on the same side. The ophthalmologist, Dr. Mary Getty, asked for an examination of the nose. The middle turbinal was found pressing against the septum. Operation gave immediate and permanent relief, both to the eye and to the neuralgic symptoms. Six years have now elapsed since the operation.

Lennox Browne reports a case of glaucoma not benefited by iridectomy, but cured by removal of a nasal polyp.

Every nose and throat specialist has so many cases of supra-orbital headache relieved by intra-nasal operation that it would be tiresome to repeat cases.

Case IV.—Miss H. H. came to my clinic at the Woman's Hospital in January, 1902, on account of a nasal catarrh which she had had since childhood. There was crusting in the nose, odor, and general discomfort. She had suffered much from asthma at the same time, but she had concluded that this was incurable. Her mother had had it all her life, and had died of it, and she was quite resigned to do likewise. Examination of the nose showed the right fossa occluded by a deviated septum, the left was very roomy and lined with crusts. The naso-pharynx and post-pharyngeal wall were dry and contained much thick secretion. The deviated septum was broken and retained in the median line by a splint which had to be worn for a month. The operation precipitated such a severe attack of asthma that I was obliged to keep the patient in the hospital for four weeks, and during the spring months which followed she was asthmatic. During the summer, however, she quite recovered, and last week she wrote me that she had been well ever since, and rarely has any return of her asthmatic trouble.

Case V.—Miss J., age fifty years, came to me in April, 1906, on account of a nasal catarrh which had existed since childhood. For the last few years there had been an abundant discharge of blood and pus. She had had asthma since eight years old. Examination of the nose showed both nares to be occluded with nasal polyps. These were removed, and the patient has only had one of her "bad, old-fashioned" asthmatic attacks since, and that occurred eighteen months ago.

Another patient, age 48 years, has almost ceased to have asthmatic attacks since the straightening of a deviated septum and the removal of some small polyps in October, 1906. She has returned twice, complaining of wheezing, and both times I have found small polyps high up in the nose. By pinching these off or by cauterizing intumescent tissue the attacks have been aborted.[1]

Maurice Schmidt tells of a patient who would occasionally return to him, saying he thought he must have another polyp for he had been feeling asthmatic again. The polyp was duly found and removed, and the patient was relieved.

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1 Since reporting this case the middle turbinals have been removed from both sides with still further relief of the symptoms.

Hay fever is not an incurable disease. I have a patient who has practically escaped three summers. Last summer she recklessly went into a field of new mown hay and precipitated a short attack, but aside from that she has had no trouble. She was a mouth-breather from habit, there being no nasal obstruction. Deep breathing exercises developed the alæ of the nose and inspiratory muscles. Aside from this she had no other treatment that I considered of any benefit. Another patient was kept free from attacks last summer by cauterizing the middle turbinals and the tubercle of the septum with tri-color acetic acid, according to the method described by Professor Killian.

THE USE OF TOBACCO BY THE IMMATURE.

By JOHN B. HUBER, A.M., M.D.,

NEW YORK CITY.

Professor of Pulmonary Diseases, the Fordham University Medical School; Lecturer, the New York State Department of Health; Visiting Physician to St. Joseph's Hospital for Consumptives, etc.

Several years ago the late Dr. I. N. Love declared: "The numerous mental wrecks, youths who have come under my care during the last ten years, whose lives were failures, or who fill suicides' graves, impress me that to-day tobacco stands as the gravest danger confronting the new century; and the medical profession has a fearful responsibility in educating young men and their parents to appreciate this danger."[1] These observations, and others of a like tenor, have been quite widely concurred in; they have stimulated the production of no little literature on the subject, some of which has been rather hysterical than scientific; and they have occasioned the activities, not always perhaps well-advised, of legislatures and of anti-tobacco leagues. Nevertheless, the general trend of this sentiment against the use of tobacco by the immature has certainly been sound; wherefore it seems apropos to note the conclusions arrived at by Dr. G. L. Meylan, the Medical Director of Columbia University, in an article on "Columbia and Nicotine," which recently appeared in the New York *Evening Post*. Meylan compared the students in that institution who smoke with the non-smokers. He found that among the former tobacco does not tend to stunt the growth, nor impair lung capacity; that the physical condition of the smokers—their weight, height, lung capacity and total strength—averaged rather better than in the non-smokers. Among his statistics we find that his smokers averaged in age twenty years and ten months; his non-smokers nineteen years and eight months. And his smokers bested the others by 1.17 centimeters in height; 1.51 kilograms in weight; .08 litres in lung capacity, and 18 kilograms in strength.

Here one immediately scents a fallacy; and is quite receptive for the very cogent criticism which the writer, "S. B. J.," submitted in the issue of April

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[1] Journal of the American Medical Association, March 2, 1901.

21, 1908, of that same newspaper: "How much gain may the nineteen-year-old men ordinarily be expected to make during the year and two months that must elapse before they are as old as the smokers with whom they are compared?" Records of Professor Hitchcock, of Amherst, are cited which show the average gain in heighth of students between nineteen and twenty years to be .732 inch; in weight 2.67 pounds; in lung capacity 5.56 cubic inches. Converting Meylan's metric data into English weights and measures, the result would show that by the time the non-smokers are as old as the smokers they may expect to be one-fourth inch taller, to have two-thirds cubic inch more lung capacity, and to be of about the same weight. Professor Seaver's records of Yale students would give the non-smokers an advantage in height of .94 inch; in weight of 7.69 pounds; in chest capacity of 14.36 cubic inches. From these and a number of other considerations, one must conclude that Dr. Meylan's presentment was unfortunate.

Among the baneful effects of nicotine (or the pyridine compounds into which it is converted) are those upon the nervous system, as evidenced by vertigo, tremor, giddiness, leg weariness, pains in various nerve-centres; amnesia, aphasia, psychic aberration, due to spinal or cerebral irritation; and especially such vaso-motor paralyses as cold extremities, pallor, clammy hands and excessive sweating. Brunton[2] has found that at first nicotine powerfully increases the blood-pressure and slows the heart; the arterioles are contracted, partly because the vaso-motor centres in the medulla are stimulated, and partly because of the local action upon the arterioles themselves. This slowing is presently followed by the rapid pulse in consequence of the paralysis of the heart ganglia. In both frogs and mammals tobacco produces first convulsions and then paralysis. The symptoms referable to the cardio-vascular system are palpitation, irregular and rapid pulse, precordial pain, oftentimes sharp and severe, and very like angina. The myocardium may become impaired by constant contraction of the coronaries;[3] this and the rise of blood-pressure may lead to arteriosclerosis;[4] a true angina may develop, as also a fatty heart.

Digestion is often impaired; much saliva is, perhaps subconsciously, swallowed by smokers who do not spit, and by chewers of tobacco this occasions nausea, vomiting, flatulence and gastralgia, especially in the neophyte. It is likely also[5] that the gastric secretions are thus diminished, hyperchlorhydria induced, and muscular tone in the digestive tract impaired. "A peculiar susceptibility to the influence of tobacco is shown when a lesion arises in previously healthy epithelium; and this may even induce a cancer at an especially early age;[6] susceptibility to such a malignant growth may play an important part when a chancre, or some sore caused by biting the tongue or

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2 "The Effect of Tobacco in Health and Disease," by Brunton and others: The Practitioner, July, 1905. Also Clark (L. P.): "The Experimental Effects of Tobacco on the Nervous System," Medical Record, June 29, 1907.

3 Larrabee, R. C.: Tobacco Ref. Handbk. Med. Sc., Vol. VII, p. 791.

4 Huchard: Maladies du Cœur, Paris, 1889.

5 Dalton: The Practitioner, July, 1905.

6 Spencer: *Ibid.*

cheek, or by the irritation of a tooth, is aggravated by tobacco. Tobacco may affect the nose and throat, either by irritation (especially when the stronger forms are used), or indirectly from dyspepsia or other constitutional disturbances; it should not, however, be blamed entirely for the "relaxed" or "gouty" throat, in the production of which alcohol oftentimes plays a part.[7] Tobacco may, moreover, unfairly be held accountable for a catarrh dependent upon some such well-defined lesion as a suppuration in an accessory sinus. And yet tobacco will often enough aggravate such a lesion, as it will also a pre-existent inflammation of the whole respiratory tract. Asthma is not rare among smokers; the respirations are quickened and deepened, so that dyspnœa is the result. Smoking in an unventilated room is much more injurious than in the open; and non-smokers might as well indulge if they must breathe an atmosphere laden with tobacco fumes. When the smoke is inhaled much nicotine is absorbed by the sensitive pulmonary surfaces, and thus must be explained the prostration which so often follows upon this practice. Our colleagues who work upon the nose and throat have found that no treatment will avail so long as the patient will persist in the use of tobacco. The "weed" produces, by local irritation, a catarrhal conjunctivitis; or the nicotine, when slowly and continually absorbed from the alimentary tract, may induce amblyopia, either acute or chronic. The acute form has resulted even from the application of tobacco to a hollow tooth; and in a patient who took snuff during ten days to cure a cold. The chronic form occurs in heavy smokers of strong tobacco; dyspepsia, bad feeding, poverty, overwork, worry and insomnia predispose by lowering the nervous resistance to such toxic influences. If amblyopia is to be treated, tobacco must, of course, be entirely withheld; the results are better in the young than in men over fifty. Among other evils ascribed to the misuse of tobacco is impotence. Those who work in tobacco suffer greatly from anæmia, respiratory diseases and digestive disturbances. As we are here concerned mainly with the immature it seems relevant to consider the experiments of Vas[8] upon puppies. By means of this substance he induced anæmia; the hæmoglobin and the red blood corpuscles decreased over one-half; the solid residue and the alkalinity of the blood decreased a little, whilst the leucocytes were decidedly augmented. The use of tobacco has been observed to induce a diminution of the therapeutic effects of medicines, and to retard the healing of wounds. Unquestionably tobacco predisposes to pulmonary tuberculosis, and when diseases of respiration have developed the tobacco habit certainly aggravates them.

The most injurious form of smoking is the cigarette, largely because the fumes are inhaled, and also because of the temptation to smoke many cigarettes; next comes the pipe; the least injurious is the cigar. Tobacco used in chewing and snuffing contains very little nicotine, wherefore poisoning by these means is comparatively rare. Other things being equal, the more excessive the indulgence, the more the smoke is inhaled, and the younger the patient, the more likely are ill effects to be manifested.

[7] Lack: *Ibid.*

[8] Archiv. f. Exp. Pathol., XXXIII, 141.

Tobacco has its analogue among perhaps every people or tribe that has ever been visited by civilized man. It is one of the "paratriptics," the savings banks of the tissues, which seem to retard tissue waste; such also are the Calabar bean, coca, arsenic, strychnine, cinchona, gentian, Indian hemp, coffee, tea, alcohol. The best reason for saying that these things are beneficent when judiciously used is that the demand for them is imperative and not to be denied—their worldwide prevalence demonstrates that. They are used to tide an exhausted or a misused organism over physical crises. To the beginner in their use the most of them are unpalatable, or even poisonous; and it is not likely they would be taken to any degree were it not that the moderate use of them has, on the whole, been found salutary, or at least necessary. As a paratriptic, tobacco has established itself immovably in the regard of a very large contingent of the race. In the East they say of it that to some there can be no greater blessing; to others no greater curse. I am here, however, not concerned with the adult; I but enounce the general principle that the use of tobacco should be debarred the child, the growing lad and the youth. For them it is unquestionably deleterious and poisonous; and their bodies, which are fresh and rich in reserve forces, need no stimulant, this or any other. One must surely conclude that a substance which can, when persisted in, so profoundly affect the youthful organism in the ways here indicated, is likely to work destructive and permanent changes in the tissues.

CONGENITAL UNILATERAL HYPERTROPHY—REPORT OF CASE.[1]

By C. H. MUSCHLITZ, M.D.,

Demonstrator of Orthopœdic Surgery in Jefferson Medical College; Assistant Orthopœdic Surgeon to Jefferson, Philadelphia, and St. Agnes' Hospitals.

The following case is rather an unusual type of congenital abnormality, and I, therefore, have considered it worthy of permanent record.

The patient, S. E. M., a male infant, age four months, of American parentage, was first seen at the Orthopœdic Dispensary of the Jefferson Hospital, November 9, 1907, and the following history was obtained from the family physician, Dr. L. C. Williams, of Lambertville, N. J., who referred the case. The patient was a first and only child, born full term, breech presentation with forceps delivery of the head. The infant was breast-fed, always healthy, and teething began a short time before the visit to the dispensary. The family history presents some evidence of tuberculosis on the paternal side. The mother, before and during her gravidity, was in excellent condition, there being no history of nervous or mental disturbance, trauma or uterine disorder. When the child was one and one-half months old the mother noticed an inequality of the legs, the left being the larger, both equally active, but she

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[1] Read before Philadelphia Pediatric Society, March 10, 1908.

thought the larger one the stronger. There was no evidence of pain, tenderness or restlessness at any time.

Examination revealed a well-nourished and developed infant with a rather square shaped head, which was found to be symmetrical. The most noted abnormalities were the enlargement of the left arm and left leg, the measurements of which are as follows:—

Measurements of Legs.	Left.	Right.
Circumference of thigh at groin.....	23.1 cm.	22.5 cm.
Circumference of thigh at middle.....	23.25 cm.	20. cm.
Circumference of thigh above knee.....	18.11 cm.	15.5 cm.
Circumference of calf.....	18.1 cm.	15.5 cm.
Circumference of ankle.....	13.1 cm.	11.25 cm.
Circumference over dorsum of foot.....	13.5 cm.	11.25 cm.
Length of leg from ant. sup. spine to int. mall.	47.5 cm.	48.1 cm.

Measurements of Arms.	Left.	Right.
Circumference at biceps.....	13.5 cm.	12.8 cm.
Circumference at forearm.....	13. cm.	12.5 cm.
Circumference at wrist.....	9.25 cm.	9. cm.
Circumference at hand.....	9.25 cm.	9. cm.

The temperature, sensations and reflexes were normal in both arms and legs. The tissue seemed equally firm in all the extremities. There was no evidence of unilateral facial, cranial or chest involvement. The contour of the extremities seemed undisturbed. There was no impairment of the movements of any part of the body.

The radiogram (by Dr. W. F. Manges) shows slight enlargement of the body structure and clearly demonstrates that the muscular structures are the principal tissues involved.

In supplementing the report of this case with a review of the literature, I find that Greig (in 1898), Fowler and Johnston (in 1900), have ably discussed and considered the subject in well-written articles.

The terms that have been applied most commonly to designate this anomaly are congenital hemi-hypertrophy, congenital lateral hypertrophy, congenital unilateral enlargement, and Taruffi has used the term macrasomia lateralis. Probably no better term could be used than that of unilateral hypertrophy or unilateral enlargement to cover the subject as a whole, for in the classifications subdivisions are quite numerous, and as a result various terms might be applied indicating the part of tissue involved.

Greig classifies these conditions first, according to the tissues affected, and secondly, according to the anatomical part involved. The tissue classification is as follows: (1) Bone only affected, (2) soft part only affected, (3) bone and soft parts affected conjointly. The anatomical division is: (1) Head and face alone are involved, (2) not limited to the head and face, (3) not involving head and face. Fowler classifies these as true and false. The true, he says,

are always congenital and non-progressive, but in which the tissues uniformly participate in the overgrowth. In Wittelshafer's collection of 46 cases, only 2 cases were true hypertrophy, according to Fowler, and only two cases involved the arms and legs.

Etiologically nothing definite has been recorded. Tiehl, Passauer, and Adams have reported maternal impressions as causes in their cases. Tellat and Monad mention incomplete paralysis of the vaso-motor nerves causing congestion and hypertrophy, and Greig suggests meningitis, cerebritis or some involvement of the cord.

Of the cases recorded about twenty per cent. of those involving the head and face have been mentally deficient, while no signs of idiocy or imbecility were noted in those involving parts other than the head and face. We might, therefore, almost conclude that the origin of these conditions may differ quite materially, depending on the part as well as the tissue involved.

Little is known of the pathological findings in the congenital or true variety, for the reason that so few have come to autopsy or under the surgeon's knife. We are indebted to Hornstein, who found in one case, whose tissues were subjected to microscopic examination, that hypertrophy in the muscle, subcutaneous tissues, and in the skin existed, the septa and muscle bundles being increased. In another case, quoted by the same writer, thickening of the bones at the epiphyses, increase of fat and increase in the connective tissue in the peripheral nerves were noted. Maschke reports a unilateral enlargement of the leg with congenital displacement of muscle tissues in the foot and bone enlargement.

Adams reported a case as unilateral hypertrophy which later developed telangiectatic spots all over the surface of the hypertrophied side. Several of the cases of this type are recorded in Greig's collection.

Of the clinical findings noted in some cases are those of increased activity of the sweat and sebaceous glands, early eruption of the teeth, rapid growth of hair and nails. The temperature is often higher on the affected side. French writers have observed a difference in the pulse. It is not unusual to find in these congenital cases that they have remained unnoticed until rather late dates. Fischer's case was noticed at youth, Devouge's case at five months, McGregor's case at two years, while Blodgett's case was marked and noted on the third day.

The diagnosis of these cases, as a rule, present little or no difficulty, though atrophy of the opposite side is a condition which has sometimes been noted. Milne reports a case in which the diagnosis was doubtful, but, after carefully studying the case, concluded that atrophy of one side and hypertrophy of the other existed in the same patient. By the exclusion of palsies, muscular dystrophies and bone affections, together with a clear history, the diagnosis should not be difficult.

The prognosis of these cases, so far as life and use of the part is concerned, is favorable. Johnston and Fowler claim that they rarely increase in size out of proportion. Adams' case, however, is an exception. Ahfield, Mobius and Wagner found in one case that the relative measurement remained the same

between the ages of three and fourteen years. Mental deficiency, as was stated before, is rare, save in facial and cranial cases.

The congenital cases require no treatment, as they rarely interfere with function. Exceptional cases, however, require partial removal, amputation and vessel ligation.

The case which I have described in the beginning of my paper could well be classed as a form of hypertrophy involving the soft parts only, not involving the head and face, and, according to Johnston and Fowler, classed as a true hypertrophy which is the least common variety. My case, too, presented an unusually early eruption of the teeth, but the afore-mentioned clinical findings were absent. In Greig's tabulation of 42 cases, not limited to the head and face, only two cases involved the arms and legs alone, both being right-sided. Nearly all of them show bone enlargement. The case I have reported shows slight bone enlargement, and is the only left-sided case involving only the arm and leg that the writer is able to find record of.

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IS THE HUMAN BODY SUPPLIED WITH AN AUTO-PROTECTIVE MECHANISM? A NEW THEORY OF IMMUNITY BASED ON THE DUCTLESS GLANDS.[1]

BY CHARLES E. DE M. SAJOUS, M.D.

PHILADELPHIA.

HIPPOCRATES 400 years before the Christian era, taught that the physician should look to the efforts of Nature for guidance. The best work of our day, that upon Immunity, has the same trend. Is the human body supplied with a mechanism which governs the production of the defensive substances that appear in the blood after certain infections and intoxications? My researches have shown that such a mechanism exists and that the organs constituting it are (as I suggested in 1903 in the first volume of "Internal Secretions") the adrenals, the thyroid and the pituitary body.

The immunizing process is intimately related with and dependent upon the functions of these organs:—

Adrenals.—These organs supply a secretion which on reaching the lungs absorbs the oxygen of the air and becomes a constituent of hæmoglobin—its

[1] Abstract of address read by invitation, before the Toronto (Canada) Academy of Medicine, January 5, 1909. To be published *in extenso*, with illustrations and evidence, in the *New York Medical Journal.*

albuminous constituent. It is, as such, taken up by the red corpuscles[2] and secreted by these cells as droplets (the so-called "blood-platelets") in all parts of the body including the *blood-plasma* itself. The purpose of this albuminous hæmoglobin (which I have termed "adrenoxidase") is to supply oxygen to the tissues and to the blood. Important in this connection, however, is that this adrenoxidase gives the reactions and presents other characteristics of a familiar agent in the immunizing process, the *immune body* or *amboceptor.*

Thyroid and parathyroids.—These organs supply secretions which on passing out of the lymphatics (into which they are secreted) enter the left subclavian vein, and become merged into a single substance. Passing then into the blood of the superior vena cava, this secretion is carried to the lungs, and on reaching the air-cells is taken up by the red corpuscles—along with the oxygenized adrenal secretion. A salient feature of the immunizing process appears in this connection, viz., the thyro-parathyroid product is also secreted by the red corpuscles into the blood and tissues, and by acting directly upon the phosphorus which the nuclei of all tissue cells, pathogenic organisms, etc., contain, increases their inflammability, i.e., their sensitiveness to oxidation. As such, it proved to be both *opsonin*[3] and *agglutinin.*

Pituitary.—Considered from the standpoint of immunity only, this organ contains a sensitive organ,[4] the "immunizing center" located between the anterior and posterior lobe (the pars intermedia) and connected with the adrenals and the thyro-parathyroid glands by nerves. Through these nerves the immunizing center governs the functional activity of these two sets of organs (and, therefore, the production of amboceptor, opsonin and agglutinin), and through them, therefore, general oxidation. As such it is the heat or fever center. While irritation at intervals along the paths of the nerves from the pituitary to the adrenals and thyroid causes a marked increase of temperature, division of these same paths renders impossible the production of fever even by the injection of putrid substances.

The "immunizing center" I found to be the developed "test-organ" or "osphradium" described by zoölogists in several invertebrates. While in these animals its purpose is to test the purity of the sea-water from which they obtain their oxygen, in the higher animals including man, it tests the qualitative homologue of sea-water, his blood. When the latter contains certain poisons, the "immunizing center" is excited by it and the functions of the adrenals and

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2 Among the facts which have confirmed the view I advanced in the first volume of "Internal Secretions" (1903) that the red corpuscles were the distributors of the adrenal secretion to the tissues, is the observation of Mulon, of Paris, that these corpuscles give the chemical reactions of adrenalin.—S.

3 I pointed out in the second volume of "Internal Secretions" (first edition, 1907) that the secretion of the thyro-parathyroids was Wright's opsonin; Marbé, of the Pasteur Institute, has since found that thyroid preparations increase markedly the opsonic power of the blood.—S.

4 Since I suggested, in 1903, that the pituitary body contained a sensitive organ which was influenced by drugs and poisons, Gentès, Boeke, Gemelli and others have found such a structure in the pituitary of various animals.—S.

thyro-parathyroid glands being stimulated, the immunizing process (as manifested by fever when marked) is initiated.

The identity of *the immunizing process* itself (a new theory of immunity, the various phases of which, I have found, can be readily discerned by the physician and governed by appropriate remedies), based on the functions of these various organs, is as follows:—

There occurs, at first, what might be termed the *preparatory stage,* the purpose of which is to increase the defensive constituents of the blood and other body fluids:—The toxic (whether a toxin, wastes, drugs, etc.) excites the immunizing center. This center in turn stimulates the thyro-parathyroid glands and the adrenals, thus causing them to supply the blood (and to a certain extent the lymph and serous fluids) with an excess of *thyroiodase* and *adrenoxidase.* Metabolism being enhanced in all tissues by these substances, the pancreas also secretes an excess of *trypsic ferment,*[5] while the leucocytogenic tissues (bone-marrow, lymph glands, etc.) produce an increased number of leucocytes, mainly *finely granular oxyphiles* and *phagocytes.*

The blood and other body fluids being now provided with all the active agents of the defensive mechanism the *active stage* of the process itself is started. It is briefly as follows:—

The thyroiodase (opsonin, agglutinin) sensitizes and softens the pathogenic agent while the adrenoxidase (amboceptor) oxidizes the phosphorus of the nucleo-proteid granulations, liberating heat. The activity of the digestive ferments (plasmatic and phagocytic complement) being increased by heat energy, the pathogenic agents are digested and converted into eliminable products.

Not only is this conception of immunity based on ample experimental, chemical and clinical evidence, but it harmonizes with the general trend of modern thought. Its functions sustain the views of the modern biochemist who has found that increased metabolism is a characteristic of the febrile process; they also coincide with the observations of the bacteriologist that while most pathogenic bacteria thrive at the normal temperature of the body, they promptly die when it is raised several degrees. They account for the teaching of clinical experience that a higher mortality occurs in apyretic cases than among those in which the febrile process has been active. They explain the harmful influence of hyperpyrexia, since excessive immunizing activity means proteolytic destruction of the blood-cells (hæmolysis) and even of tissue-cells (autolysis) besides the pathogenic agents themselves.

In the practical field, personal experience sustained by that of colleagues who have carefully studied my doctrines, has shown clearly that these embody the lever through which we can overcome infections. We need only analyze the beneficial action of vaccine therapy, of antitoxine, of drugs such as mercury,

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[5] In the first volume of "Internal Secretions," pages 367 to 420, I have submitted evidence to the effect that this ferment is secreted by the pancreas as a true internal secretion into the splenic vein. On reaching the portal system, it is taken up by leucocytes, both for their own use as phagocytes and for the plasma and tissue cells, where they secrete this and other pancreatic ferments.—S.

the iodides and other so-called "alteratives" to recognize that their tendency, in therapeutic (non-toxic) doses, is to raise the temperature—proof that the immunizing process is active. Here a warning imposes itself, however, for, as stated above, this process may surpass salutary bounds, and destroy blood and tissue-cells. This affords clues to the pathogenesis of many admittedly obscure diseases. In arteriosclerosis, endocarditis, hepatic cirrhosis, acute yellow atrophy of the liver, acute chorea, acute rheumatism and many other disorders, one can readily discern the pernicious influence of an excessive defensive reaction. Again, the Widal test, in view of the thyroid origin of agglutinin, finds a normal explanation while the free production of antibodies this indicates accounts for the relatively low mortality of the disease to which it applies, typhoid fever. This, moreover, explains the sero-diagnostic and sero-prognostic tests of Arloing and Courmont in tuberculosis. Agglutination is deemed by these investigators an index of the defensive power of the organism in this disease; this suggests—agglutinin and opsonin being identical—a simpler and more exact opsonic index than that now available for all diseases, as will be shown later in the columns of this journal.

Cyclopædia of Current Literature

ADRENAL GLAND, LESIONS OF.

Hyperplasia of the adrenal is an almost constant lesion in arteriosclerosis associated with chronic interstitial nephritis and left-sided hypertrophy, and it occurs with almost equal frequency in arteriosclerosis with chronic nephritis of the parenchymatous type; it is also a frequent lesion of arteriosclerosis without nephritis and of nephritis without arteriosclerosis. Adrenal hyperplasia is, consequently, probably the result of some factor active in a period of life in which these affections are most frequent. The adrenal lesion consists of increase of connective tissue, round cell infiltration, increase in the thickness of the vascular wall and hyperplasia of the adrenal cells proper. Pearce (Journal of Experimental Medicine, November, 1908).

ALBUMINURIA, INTERMITTENT, OF CHILDHOOD CONSIDERED IN ITS RELATION TO HEREDITARY TUBERCULOSIS.

Hereditary tuberculosis may attack the kidney in the child or in the adult in one of three ways:

1. Certain individuals present a more or less abundant albuminuria, which is preferably intermittent, and which may affect one of the well-known classic cycles; but it disappears as the pulmonary localization becomes established, or gives rise to general lesions, and may, therefore, be termed pretuberculous albuminuria.

This form of albuminuria does not necessarily imply the existence of renal tuberculosis; but, on the contrary, seems to have a toxic origin, and resembles the bacteriolysis which is an expression of

the spontaneous defensive forces of the organism. As soon as this spontaneous destruction ceases, tuberculosis develops and the albuminuria comes to an end.

2. The second form of tuberculosis has been scored out by the author.

3. Finally, there is a third series of cases which are much more numerous. The kidney is affected in a peculiar manner, which we have been able by a long series of similar observations to determine almost with certainty: the kidney reacts very slowly and sluggishly to the action of the tuberculous toxin transmitted by the parent, and a slight degree of latent nephritis is produced which results in a very relative impermeability, relieving itself in a moderate diminution of the total molecular diuresis, an increase in the co-efficient of Korany, and also in a slight elevation of the blood-pressure; a moderately severe albuminuria, usually intermittent, either of the matinal (morning) type, or frankly orthostatic (present during the active hours of the day); and finally—as the hallmark of its tuberculous origin—a well-defined d'Arloing-Courmont serum-reaction, often exceeding $\frac{1}{15}$. These cases, which make up more than 34 per cent. of our statistics of intermittent albuminuria in young subjects, do not eventuate in actual tuberculosis. For this reason they seem to justify the term paratuberculous albuminuria, and many of these cases belong to the category of spontaneous immunization, to which Professor Courmont has recently called attention. J. Teissier (Transactions Congress of Tuberculosis, September 29, 1908).

ANTHRAX, TREATMENT OF.

Under expectant treatment three died out of ten patients with anthrax, while none died in the nine cases between 1900 and 1905 in which active treatment was undertaken. Since 1905 the author has been using a method that seems to shorten the course of the affection still more, and there has been no mortality in the 23 cases, and no disfiguring scars. The first principle in treatment is to avoid further injury. Especially injurious is any pressure on the pustule, which forces the bacilli out into the blood. It is important, therefore, for the patient to lie quietly in bed. In mild cases it is sufficient to cover the pustule and its vicinity with an antiseptic moist dressing; mercury bichloride or aluminum acetate can be used for the purpose. The strictly local lesion rapidly heals under the treatment, but in the severer cases a crucial incision is made and the actual cautery is used to make a groove of deep punctures around the lesion. This groove forms a scab which renders it difficult for the anthrax bacilli to penetrate into the surrounding tissues. This crucial incision and the ring of cauterization around the lesion are simple and can scarcely be considered an actual operation. The pain is so slight that it seems to indicate that the sensibility in the pustule is much reduced. The writer adds that the effect of this treatment is invariably so good that it has scarcely a parallel in therapeutics, except antitoxin in diphtheria. Barlach (Medizinische klinik, November 1, 1908; Journal of the American Medical Association, December 19, 1908).

BIER'S METHOD OF PASSIVE CONGESTION.

Bier recommends both active hyperæmia and passive congestion, according to the condition to be treated. He first used passive congestion for tubercle in 1890, being influenced by the frequency of phthisis in those whose lungs were anæmic from stenosis of the pulmonary

cardiac orifice, or other cause. Hyperæmia and inflammation are beneficial to a certain extent, being nature's reaction to and method of counteracting injurious influences. Conditions brought about by congestion are relief of pain, abatement of fever, prevention of stiffness, destruction of bacteria, promotion of the absorption of fluids, resolution of thickenings in joints and tendons, and a certain degree of trophic action. In some cases it will produce a decidedly beneficial autoinoculation. It may be brought about by means of a bandage proximal to the area to be congested or by a suction apparatus.

Before treatment by congestion is commenced it is most important to determine the nature of the disease, and to vary the technique accordingly. A proper method of congestion in one case might be very improper in another. A. W. Wakefield (Practitioner, October, 1908).

CHOLECYSTITIS.

During the attack of cholecystitis the patient should rest in bed, and should have warm Priessnitz compresses over the upper half of the abdomen. Opiates should be given to relieve pain, if necessary. The diet should be exceedingly limited during the first few days, and all cathartic drugs are contraindicated. After the swelling of the gall-bladder has subsided and the local soreness has disappeared, the patient may be out of bed most of the day. The diet should consist largely of cereals, meat, simple vegetables, bread and butter. Alcoholic drinks, acid foods, and fruits should be prohibited. The use of salines should be begun early. Sodium sulphate, sodium phosphate, sodium bicarbonate, and sodium salicylate may be given in various mixtures. They are best administered dissolved in plenty of hot water, one-half to one hour before each meal. The writer does not believe there is any special virtue in sodium salicylate, not possessed by the other drugs mentioned; nor does he think it advisable for the patient to eat more than the three regular meals a day. It is possible that urotropin, or other drugs, may prove to have unusual value. Under this simple treatment, continued for months, or if need be for years, patients are given an excellent chance to escape recurrence of inflammation, and, in fact, all symptoms referable to the gall-bladder. H. W. Bettmann (Medical Record, November 28, 1908).

CHOREA, TREATMENT OF, BY INTRASPINAL INJECTIONS OF MAGNESIUM SULPHATE.

Four cases of severe chorea are reported by the author, in which the duration of the affection was shortened and there has been no recurrence since the treatment, which was by intraspinal injection of 3.5 cubic centimeters of a 25-per-cent. solution of magnesium sulphate. The patients were girls between twelve and twenty-two years old, and the sedative action of the drug was apparent in a few hours, the symptoms subsiding completely in some, but requiring a second injection in the others. Slight by-effects were noted, but they were transient in all, and in the forty cases on record in which the magnesium sulphate has been administered in intraspinal injections, apnœa was observed only in one case, and it was brief and transient. The tendency to headache and pain in the limbs after the injection can be reduced by a preliminary injection of morphine. In future the writer intends to use an isotonic solution, that is, one with a freezing point at 0.56 below zero C. This treatment may be found effectual also in major chorea, and in the chorea of pregnant women. G. Marinesco (Semaine médicale, Novem-

ber 18, 1908; Journal of the American Medical Association, December 19, 1908).

CYTOLOGIC EXAMINATION OF TUBERCULOUS EFFUSIONS IN THE VARIOUS CAVITIES, DIAGNOSTIC VALUE OF.

The cytology of effusions (Widal) requires a very simple and very easy method of examination, and is of considerable aid in determining the nature of a pleurisy. A great predominance of lymphocytes is a strong argument in favor of tuberculosis. There is no danger of making a mistaken diagnosis of tuberculosis on the strength of the cytologic findings in a pleural effusion; the only risk is that the condition may be mistaken for something else, as abnormal formulas are by no means exceptional. The anomalies of the cytologic formula are susceptible of various explanations, but some of these anomalies are still quite mysterious.

The cytology of tuberculous effusions in other serous cavities has a very questionable semeiologic value.

The great predominance of lymphocytes in tuberculous ascites must be excepted, an occurrence which, however, is by no means a very common one.

In general, cytologic findings must be interpreted with caution; they often need to be controlled by other laboratory examinations, and should always be compared with the data obtained by clinical observation. A. Cade (Transactions Congress of Tuberculosis, October 2, 1908).

DIPHTHERIA, HEART IN.

The two chief cardiac lesions in diphtheria are the parenchymatous and the interstitial. Fatty degeneration is extremely frequent, varying widely in degree, and always accompanying the severer lesions. It may occur at any time in the disease. A much severer degeneration, both focal and general, which affects all parts of the muscle fiber, the contractile elements, the protoplasm and the nucleus, and which leads to the formation of granular detritis and large irregular hyaline masses, also occurs. This is only found late in the course of the disease, rarely earlier than the seventh day. The interstitial changes are of two types. In one there are focal collections of lymphoid and plasma cells. In the other, there is the invasion of the degenerated and necrotic muscle cells with endothelial cells and polymorphonuclear leucocytes. These are all essentially late changes. Only fatty degeneration is seen before the sixth or seventh day. The early circulatory disturbance is extraordinarily severe, but, thanks to antitoxin, is rarely seen at present. Romberg and Pässler's experiments show that this is due to failure of the vasomotor center, though undoubtedly the heart itself is affected. The late circulatory disturbances may appear at any time from the second to the fifth week. The first symptoms are usually to be found in the pulse, which drops with the temperature, often to below normal, remaining there or rising and falling again. In a certain percentage of cases it may be persistently high, but either of these means almost certainly myocarditis. At other times the first symptom is irregularity in the force or rhythm, and the former is constantly present, and may last for months. The worst prognosis is given in cases with low and constantly falling rate. Heart examination reveals the same abnormalities, together with murmurs and evidences of dilatation, and here the personal equation of the examining phy-

sician has played a considerable part in their interpretation.

Accurate deductions cannot be drawn at present as to the severity of the lesions from the murmurs, and it is the author's personal opinion that dilatation has been diagnosed too frequently, though it would be wrong to say that it is unusual. A sign of mild cardial disease of greater value on account of its constancy is the alteration in character of the first sound of the heart, consisting in the more or less complete disappearance of the muscular element of the first sound, making it weak and short, and what is usually called "valvular" in quality. Studies in regard to blood-pressure are incomplete and unsatisfactory. It is generally somewhat subnormal, and when below 75 millimeters always means a serious condition, and below 70 millimeters great danger. A progressive fall should excite more concern. General symptoms, such as pallor, apathy or irritability and vomiting, are often much in evidence. Loss of weight is common, even in convalescence. The cause of death has not been determined by experiment, but the clinical evidence is conclusive that it is due to myocarditis. Rest and general management are of more importance in the treatment than drugs, from which little permanent effect can be expected, as the myocardial lesions require days and weeks, and not hours for their cure. The so-called pneumo-gastric paralysis is discussed, and the writer thinks that the post-mortem findings almost completely dispose of the nerve as a factor in producing the symptoms referred to, as it seems to be generally degenerated, and these symptoms are not common. The symptoms, he thinks, could be better explained by metabolic disturbance from the action of the toxin on the viscera, referring the slow heart and other circulatory symptoms to the concomitant myocarditis. J. Howland (Journal of the American Medical Association, December 19, 1908).

ENDOCARDITIS, INFECTIVE OR ULCERATIVE.

The diagnosis of this serious disease is often very difficult. As seen in practice it does not always correspond with the description in books. In a series of narrated cases the most prominent symptom was oscillation of the temperature, with rigor or evidence of infarction. Other symptoms were petechiæ of the extremities, vomiting, ashy discoloration of the skin, and heart murmurs. A murmur is not always present; when present it may be loud and persistent, if added to pre-existing chronic valvular lesion, or it may be soft, and finally become inaudible. Attention is called to the fact that the deposits upon the heart valves are invariably on the side over which the blood passes in its onward flow, and that the vegetations are soft and spongy. As they do not prevent closure of the valves, an absence of cardiac murmur is not necessarily strange. The vomiting and retching, which may follow a succession of rigors, without any discoverable gastric, hepatic, or cerebral change, may be considered as analogous to the vomiting of uræmia, or of cholæmia. The septic cerebral and typhoid types of symptoms are probably due to the presence of a toxine in the circulation. N. Tirard (Practitioner, November, 1908).

FLIES AS AGENTS IN THE DISSEMINATION OF KOCH'S BACILLUS.

Flies are active agents in the dissemination of Koch's bacillus because they are constantly going back and forth be-

tween contagious sputa and fæces, and food stuffs, especially meat, fruit, milk, etc., which they pollute by contact with their feet, and especially with their excretions.

The experimental researches of the author show the following:

1. Flies caught in the open air do not contain any acid-fast bacilli that could be mistaken for the bacillus of Koch.

2. Flies that have been fed on sputum evacuate considerable quantities of bacilli in their excretions. The bacilli appear six hours after ingestion of the sputum, and some may be found as long as five days later. These flies, therefore, have plenty of time to carry these bacilli to a great distance, and to contaminate food in houses apparently protected from contagion, because not inhabited by a consumptive.

3. Food polluted by flies that have fed on sputa contains infective bacilli and produces tuberculosis in the guinea pigs.

4. Flies readily absorb bacilli contained in dry dust.

5. Flies caught at random in a hospital ward produce tuberculosis in the guinea pig.

Practical Conclusions.—The sputa and fæces of tuberculous subjects must be disinfected; flies should be destroyed as completely as possible; food stuffs should be protected by means of covers made of wire gauze. Ch. André (Transactions Congress of Tuberculosis, September 30, 1908).

GRAVES'S DISEASE, PATHOLOGICAL CHANGES IN THE THYROID AS RELATED TO THE VARYING SYMPTOMS IN.

Very early acute cases show pathologically hyperæmia and cellular hyperplasia in more or less of the gland, if the more enlarged lobe has been removed. Later acute cases show greater parenchyma increase and increased absorbable secretion. The increase in parenchyma is in proportion to the severity of the symptoms. Cases in which there is remission of toxic symptoms show evidence of decreased function, or of probably decreased absorption. Those who have recovered from toxic symptoms, but still suffer from heart or nerve lesions, or from myxœdema, show exfoliated epithelium and thick non-absorbable colloid. The mild cases, of long duration, show increase of parenchyma by the multiplication of alveoli, but no increase of functional power of the individual parenchyma cells. Simple goiters should be regarded as multiple retention cysts, filled with non-absorbable secretion, cell detritus, etc. L. B. Wilson (American Journal of the Medical Sciences, December, 1908).

HÆMORRHAGES INTO THE VITREOUS BODY IN THE ADOLESCENT.

Hæmorrhages into the vitreous body during adolescence is quite frequent, and owing to the danger of recurrence, and tissue changes in the eye, is a dangerous condition, worthy not only of patient, careful, and exhaustive treatment after the occurrence, but also of prophylactic measures. The too rapid development of children should cause solicitude. Rapid changes of temperature and prolonged exposures to heat or cold are etiological factors. Menstrual disturbances, undue sexual excitement and abuse, cardiac disease, dyscrasias, malnutrition, errors of refraction, all causes of eye-strain, hereditary diseases and tendencies, vascular diseases, anæmias, abnormal (premature?) development or malformations, all mental and physical causes of sudden and rapid fluctuations of the blood-

stream and tension, are causative factors in intraocular hæmorrhages.

The origin of hæmorrhages may be from the retinal vessels or from the vessels in the region of the ciliary body, not from the sheath, etc., of the optic nerve. Glaucoma is rather the result than a causative factor of these hæmorrhages. The treatment should be medicinal, if possible, the knife to be used only as a *dernier resort.* Attacks in women usually follow menstrual disturbances. Where there is a tendency to epistaxis, and this suddenly ceases, we have a danger signal of hæmorrhage. Males are more liable to intraocular hæmorrhage than women; normal menstruation is seemingly a safeguard. The age from puberty through womanhood, or manhood, is a danger period. Anæmic conditions are predisposing. J. A. Gehrung (New York Medical Journal, December 19, 1908).

HÆMORRHAGE OF THE ADRENALS IN INFANTS.

It has been observed by the authors that hæmorrhage of the suprarenal capsules is more common than hæmorrhage in other viscera. This is due primarily to the close relation of the adrenals to the vena cava, making congestion easy, and to the peculiar anatomical construction which favors hæmorrhage. A weakness of the vessel walls, either normal delicacy or pathological alteration, favors the rupture. The place of election of the hæmorrhage is usually in the internal cortical zone, because of its vascularity and the anastomotic arrangement of the vessel. The bleeding always follows active or passive congestion. Passive congestion may be caused by difficult labors, obstetric operations, thrombosis, or, in short, anything that would favor venous stasis. Active congestion is induced by infection or any toxæmia which incites hyperæmia by a superactivity of the gland. The findings of the pneumobacillus of Friedländer in the author's two cases and other bacteria in five additional cases proves beyond question that infection is a cause of adrenalin hæmorrhage. Death results either from loss of blood or an interference with the physiologic functions of the gland. J. C. Litzenberg and S. M. White (Journal of the American Medical Association, December 5, 1908).

HEART IN PULMONARY TUBERCULOSIS.

The importance of study of the heart in pulmonary tuberculosis with reference to diagnosis, prognosis, and treatment is emphasized by the writer. The heart itself may be diseased or not diseased in a given case. In considering the latter situation the author regards the position of the heart, its size, dilatation with the area of cardiac dullness, auscultatory phenomena, the pulse, including blood-pressure and palpitation.

The position of the heart in patients with pulmonary tuberculosis depends directly upon the pathological changes that have taken place in the lungs; in other words, it may be displaced upward, downward, to right or left. In size the heart, with tuberculous lungs, may be large, small, or normal. Dilatation of the heart occurs far less frequently than would be supposed, and then only late in the disease. Careful auscultation of the heart reveals, in a certain portion of patients with pulmonary tuberculosis, accentuated second pulmonic sound, functional murmurs, etc. The frequency and tension of the pulse are changed early and often permanently. Palpitation is an accompaniment at puberty and the menopause; it may precede hæmoptysis, and accompany dyspepsia. L. Brown

(American Journal of the Medical Sciences, December, 1908).

LOCOMOTOR ATAXIA, TREATMENT OF.

The writer deprecates the general tendency to give an unfavorable prognosis in cases of locomotor ataxia, which has a tendency to send the patients to the pretentious quacks, of course, to be disappointed in the end. Two classes of cases are recognized by the writer, one including about 60 per cent. of all patients, and in which the disease is a parasyphilitic affection, progressive and usually incurable, though subject to favorable modifications, and even arrest by intelligent treatment; the other 40 per cent. includes patients who are not only capable of being greatly helped, but often of being cured. Of course, evidences of destructive neural disease is of unfavorable signification. Considering the larger proportion of luetic cases, specific treatment is suggested, and it is found that in about 20 per cent. the use of mercurials is of advantage, especially the bichloride. The treatment of special symptoms is of great importance, and attention is called to the effect of barometric conditions on the ataxic pains which are for this reason often considered rheumatic. If this influence can be determined, the use of the salicylates and hydrotherapy are often of value, and, with the judicious control of the physician, the use of morphine is comparatively safe. Dietetic regulation should be instituted for the gastric crises, which are often associated with intestinal disturbances and autointoxication. The use of counter-irritation is also mentioned. For the ataxia, the Fräenkel systematic exercises may do much good in cases in which there is not too much pain, gastric crises or excessive friability of the bones. Overexercise and fatigue, however, should be avoided. When there is plantar anæsthesia, perhaps causing the ataxia, the author has found surprising benefit from the high-frequency current applied directly to the sole by means of a spark electrode. He has no faith in other forms of electricity for this purpose. For the urinary difficulties occurring in about half the cases, lavage of the bladder at regular intervals, used for a long period, is important. A warm winter climate is useful in tabetic cases, and, preferably, dry climates. Cases due to shock, trauma or hysteria are often curable by very simple means, if there is no syphilitic basis. A. McL. Hamilton (Journal of the American Medical Association, December 5, 1908).

OPHTHALMO-REACTION TO TUBERCULIN.

In this communication the author has confined himself to the report of personal clinical and experimental facts. From the clinical standpoint, he was, in collaboration with M. Dumarest, one of the first to call attention to the thermic reaction and the general phenomena that follow the instillation of tuberculin into the eye. In some cases he has seen the conjunctival reaction accompanied at the time by more or less marked dilatation of the pupil; much more rarely myosis was observed under the same circumstances. In his earliest researches he also observed, without at the time offering any explanation, a phenomenon which he regarded as a kind of local anaphylaxis, namely, that a patient in whom the ophthalmo-reaction was negative at the first instillation may react to a second, or even a third test.

With regard to the interaction of tuberculin treatment and the ocular test, it appears that a previous ocular reaction is frequently revived by the subcutaneous injection of medicinal doses of

tuberculin; but this does not constitute a contraindication to the employment of the two procedures in the same subject. It also appears that a previous impregnation of a patient with tuberculin for therapeutic purposes has a very variable effect on a subsequent ocular test.

The ocular reaction is not free from danger. It is occasionally accompanied by ocular complications, such as prolonged conjunctivitis and ulcerations of the cornea. The previous instillation of 1 to 3,000 adrenalin is capable of counteracting certain excessively violent or prolonged reactions.

In the second part of his communication the author gives the result of his experimental researches on the pathogenic mechanism of the ocular reaction to tuberculin: Non-tuberculous rabbits impregnated with various microbic poisons (tuberculin, typhoid, staphylococcus and diphtheritic toxins) gave positive ocular reactions. The rabbit was in fact more actively sensitized by the typhoid toxin than by tuberculin, or at least to an equal degree. In the same manner, horses used for the production of antidiphtheritic and antitetanic serum reacted positively under certain conditions.

These experimental facts, which show that a positive ocular reaction to tuberculin may be obtained in non-tuberculous subjects, accord with the clinical cases of positive reactions in the non-tuberculous suffering from typhoid, staphylococcic, syphilitic, or some other infection. On the strength of these two series of observations, the writer believes that the ocular reaction to tuberculin, which represents a local vasomotor reaction, may occur whenever the vasomotor centers of an individual are in a condition to react by vaso-dilatation by reason of their being impregnated with a microbic toxin. Hence the ocular reaction to tuberculin occurs in individuals who are in a state of intoxication, *i. e.*, whose organism is impregnated and sensitized by a toxin of any kind. The ocular reaction is therefore not absolutely specific from a theoretical sense, but has merely a relative value.

In the third portion of his paper the author takes up a comparative study of the ocular reaction and the bacterial serum-agglutination test. These two reactions are often found in the same individual; while on the other hand, one may be present when the other is absent; or, finally, one may be more intense than the other.

The study of the symptoms and of the clinical course in these cases of contradictory reactions has led the author to attribute a different value to the ophthalmo-reaction from that which belongs to the serum-reaction. The ophthalmo-reaction indicates that the organism is intoxicated with tuberculin; the serum-reaction, on the other hand, like agglutination reactions, is generally recognized as showing a defensive reaction of the economy, while the intensity of the reaction measures the degree of immunity of the individual to the tubercle bacillus.

It appears, therefore, that in practice, at a certain point in the evolution of a tuberculous disease, a positive ophthalmo-reaction with a negative serum-reaction indicates a doubtful prognosis; while the contrary would indicate a favorable outcome. When the two phenomena are practically equal in intensity, it shows that the organism is in a state of indifferent equilibrium and that the disease may either end in recovery or the patient succumb to unfavorable influences.

Such is the significance which the writer attributes to the ocular reaction,

but no positive conclusion can be drawn in such a complicated question.

To sum up, the ocular reaction is a convenient and easily available diagnostic procedure; it sometimes fails in patients who are certainly tuberculous; and on the other hand, may occur in subjects not suffering from a bacterial infection. Its diagnostic value, although quite considerable in practice, is nevertheless not absolute. The test is not always harmless. It has not proved itself superior to the bacillary serum-agglutination, which has the advantage over the ocular test of being absolutely harmless, more constant, and more delicate. Finally, the ophthalmo-reaction is an indication rather of the degree of intoxication of the organism, while the serum-reaction reveals the forces available for defense against the infection. F. Arloing (Transactions Congress of Tuberculosis, September 29, 1908).

PANCREATITIS, ETIOLOGY AND PATHOGENESIS OF.

Gall-stones are etiologically associated with pancreatitis in from nearly one-half to over three-fourths of the cases (43 per cent. of Egdahl to 82 per cent. of Mayo). Anatomical peculiarities and variations of the terminal pancreatic ducts are the determining factors in the occurrence of pancreatitis in some cases of gall-stones and not in others. Lodgment of a stone in the ampulla of Vater, temporarily or permanently causing retrojection of bile into the pancreatic duct (Opie), causes acute hæmorrhagic pancreatitis. The chronic indurative or interstitial type is caused by stones lodged, resident, or escaping through the common duct.

Bacterial invasion is secondary to some unphysiologic or mechanical internal injury. Infection of the pancreas by the lymphatics in cases of cholecystitis is probably a more frequent avenue than by continuity. Gastro-duodenitis appears to be responsible for about one-third of the cases. "Catarrhal jaundice" is probably caused by inflammatory swelling of the head of the pancreas compressing the common duct of the liver, in many instances. Mumps causes about 10 per cent. of the cases of pancreatitis, and some other infections may likewise cause it by metastasis. Fat necrosis, with acute hæmorrhagic pancreatitis, is caused by some injury to the gland cells, and access of bile or enterokinase, which activates the hæmolytic property of pancreatic juice. W. D. Haggard (Surgery, Gynæcology and Obstetrics, December, 1908).

PLEURAL ADHESIONS IN SUDDEN DEATH, ASPHYXIA AND SEVERE INJURIES.

Pleural adhesions occur in 80 per cent. of cases. They are most frequently of tuberculous origin. Every individual with pleural adhesions is liable to sudden death. Every patient with adhesions falling in water is a doomed man (Lacassagne). Adhesions may aid rapid death in anæsthesia or after severe surgical injuries. Their importance is therefore very great in general medicine and in legal medicine. They are the more injurious as they are more extensive. Lacassagne and Martin (Transactions Congress of Tuberculosis, October 2, 1908).

RHEUMATISM, TUBERCULOUS AND INFLAMMATORY TUBERCULOSIS.

Our researches during the past ten years have established the existence of articular and non-articular tuberculous rheumatism. This last comer among the infectious rheumatisms should be placed in the front rank, as it is the most frequent, and its frequency is explained by

the frequency of tuberculosis. The various forms of tuberculous rheumatisms range from the acute forms (acute and subacute articular rheumatism) through all the intermediary grades to the chronic forms (nodular, deforming, ankylosing articular rheumatism).

As a rule, the articular lesions do not exhibit the characteristics of classic tuberculosis, such as tubercules, caseous infiltration, etc. (macroscopic features), or tuberculous follicles, giant-cells, etc. (microscopic features) that constitute the characteristic picture to which the term "specific tuberculosis" may properly be applied. The lesions, on the contrary, are made up solely of inflammatory tissue; hence the name "inflammatory tuberculosis," which we have given to this variety of tuberculosis.

There are accordingly two great varieties of tuberculosis: Specific tuberculosis, which has been admirably studied and is well known; and inflammatory tuberculosis, with an insignificant anatomic reaction, purely inflammatory, as in all infections and intoxications. This latter form of tuberculosis has been studied more particularly during the past five years by the writer. It embraces the attenuated forms of tuberculosis which until that time had not been properly recognized. Its range is no less extensive than that of virulent specific tuberculosis. It attacks all the tissues, all the systems, all the organs, as well as the joints, where its existence was first revealed to us under the form of tuberculous rheumatism. Quite often it takes the place of the arthritic, fibrous or neuro-arthritic diathesis, etc., terms which are becoming more and more vague and less acceptable, because they merely refer to syndromes brought about by the tuberculous virus under a great variety of circumstances. A. Poncet (Transactions Congress of Tuberculosis, October 2, 1908).

SCARLET FEVER, TREATMENT OF.

The severity of the sore throat in every case of scarlet fever in the writer's experience invariably was proportional to the severity of the disease and the gravity of the prognosis, especially in regard to the complications. By keeping the process in the throat under control it is possible to attenuate the infection and ward off complications. Direct local applications with a brush are liable to be too superficial to do any good, or, if applied vigorously, may abrade the surface and open new portals for infection. Gargling is also too superficial in its effects, and it is difficult to get children to rinse out their mouths effectually with an antiseptic mouth-wash. The author has derived much benefit from direct insufflation, through a straight tube, of a mixture of equal parts of sodium sozoiodolate and sulphur. It is necessary to repeat this insufflation every hour, day and night, to have it do any good, and the writer insists on this when he sees that the throat process is assuming a progressive character. He continues this local application until the ulcerations are circumscribed and the mucous production has ceased. As the throat process becomes attenuated under the influence of this local treatment, the general symptoms subside, and he has never had otitis develop or phlegmon in the maxillary glands under it. In a few instances otitis developed a week later, but this, he states, must have been from infection by way of the blood, and the otitis was always mild and rapidly subsided after paracentesis.

The kidney complications must be warded off by strict dietetic measures,

avoidance of all nitrogenous foods and alcohol, and reliance on milk as the main article of diet. During a very tempestuous onset of the infection, when there is danger of heart failure, large doses of alcohol may be given to tide the patient past this crisis, but after this, alcohol should be forbidden in any form. The author keeps his patients in bed for four weeks. His careful examination of long series of scarlet fever patients has failed to reveal the diphtheria bacillus in the throat in any instance. Rubens (Berliner klinische Wochenschrift, October 19, 1908; Journal of the American Medical Association, November 21, 1908).

TUBERCLE BACILLUS, HOMOGENEOUS CULTURES OF THE.

In 1898, Arloing made the discovery of the homogeneous cultures of Koch's bacillus. Their study has been continued by S. Arloing and P. Courmont, who are now in possession of seven different kinds of homogeneous cultures of Koch's bacillus, obtained from different sources: 5 human organisms, 1 bovine, and 2 avian. Courmont was able to render homogeneous the first organism isolated by Koch, which has been cultivated in the laboratory for the past 27 years. This was therefore not an achievement in new lines of research, but essentially an adaptation of Koch's bacillus to life in homogeneous cultures, *i. e.,* in liquid cultures of uniform turbidity and in which the organisms are evenly scattered. These observers studied the variations in morphology—resistance to acid, and virulence —of the bacillus modified as above. The homogeneous cultures retain certain characteristics pointing to their identity as tubercle bacilli, including the power of tubercle- formation. Certain of these cultures are subject to agglutination and are useful in serum-diagnosis (method of Arloing and Courmont). The discovery made by these investigators is thus of some practical importance (serum-diagnosis and prognosis), as well as of great interest from the view point of general bacteriology. S. Arloing and P. Courmont, Oct. 1, 1908; (Transactions Congress of Tuberculosis, Oct. 1, 1908).

TUBERCULOUS EFFUSIONS AND THEIR DIAGNOSTIC AND PROGNOSTIC SIGNIFICANCE.

The writer studied the fluid of tuberculous effusions, pleural in particular.

1. *Amount.*—In a tuberculous effusion, large amount is a good sign in prognosis.

2. *Coagulability.*—High fibrin-content and clotting are favorable, and *vice versa.*

3. *Toxicity. Anaphylaxis.*—Tuberculous effusions show high toxicity when intravenously injected in rabbits. Courmont, in 1900, discovered the anaphylactic property of tuberculous effusions when inoculated in guinea-pigs. Whereas a large single dose is not toxic, repeated very small doses cause death. It is essential to know whether the human patient has not been anaphylacticized through reabsorption of his own effusion (See Archives de Pharmacodynamie, 1900).

4. *Bactericidal Power.*—The observer has shown that pleural fluid is bactericidal *in vitro* for homogeneous cultures of Koch's bacillus (C. R. de la Soc. de Biòl., 1898); the process is thus a defensive one.

5. *Agglutinating Power.*—Tuberculous pleural effusions agglutinate the bacilli of Koch. (See special communication by the same author to the Congress on Serum-diagnosis, on the diagnostic and

prognostic significance, based on 120 personal observations).

6. The pleura plays an active rôle, it produces antibodies, and is not a mere passive filter. P. Courmont. (Transactions Congress of Tuberculosis, Oct. 1, 1908).

TUBERCULOUS IMMUNITY AND NEGATIVE REINOCULATIONS.

The reinoculation of tuberculosis at another point on the body of an animal which is already tuberculous may give a positive or a negative result. Opinions on this point are divided. The authors have tested this question on the guinea pig, using very virulent cultures of bovine bacilli with their transcutaneous method of inoculation (Société de Biologie et Journal de Physiologie et de Pathologie générale, 1907). Favorable conditions are found in the slowness of the process, the insignificance or absence of local lesions, and the magnitude of the caseous glands. If a guinea pig which has been tuberculous for from thirteen to twenty days is inoculated under the skin, the glandular reaction is feebler than in control animals; but these results of subcutaneous inoculation are not conclusive.

The results are very clearly defined when two successive transcutaneous inoculations are made at intervals of at least two weeks. (This is accomplished by simply rubbing the culture on the skin). The reinoculation is negative. No local lesion whatever is produced; the glands do not become tuberculous; they scarcely hypertrophy and are never caseous. No general effect is produced either in the spleen or elsewhere. On the other hand, if the animals are allowed to live, the first inoculation runs its normal course; it is accompanied by general lesions and ultimately kills the animal. This proves that a lesion in process of evolution prevents the evolution of a second inoculation.

The author's experiments suggest the following question: Is a tuberculous human being during the period of evolution immune to reinfection? Jules Courmont and A. Lesieur (Transactions Congress of Tuberculosis, October 1, 1908).

TYPHOID FEVER, ASCITES IN.

Peritoneal effusion in typhoid fever, apart from peritonitis, is of rare occurrence. The writer has observed six cases in the past three years, in all of which the effusion occurred during the course of the illness, persisted from ten days to two weeks, and disappeared in all but one of the cases with convalescence. In only one of the cases was there hæmorrhage or symptoms of peritonitis. In four of the cases the effusion was due to pathological conditions resulting from typhoid infection, though the immediate cause was uncertain. The relaxed condition of the abdominal walls favored stasis and serous transudation. The enlarged mesenteric glands may also have caused sufficient irritation of the peritoneum to produce effusion. The element of toxæmia must also be taken into account, a toxic substance possibly so affecting the hepatic cells as to obstruct the portal circulation, or so changing the peritoneal epithelium as to permit a more rapid escape of serous exudate, causing such obstruction to the peritoneal lymphatic vessels that the exudate may not be readily removed. A. McPhedran (American Journal of the Medical Sciences, November, 1908).

Book Reviews

THE SURGERY OF THE EAR. By Samuel J. Kopetzky, M.D. Attending Otologist, New York City Children's Hospitals and Schools; Attending Otologist to the New York Red Cross Hospital; Assistant Surgeon and Instructor in Operative Surgery of the Ear, Manhattan Eye, Ear, and Throat Hospital; Pathologist and Surgeon, New York Throat, Nose and Lung Hospital; Fellow of the American Laryngological, Rhinological and Otological Society; Fellow of the New York Academy of Medicine, American Medical Association, Otological Society of Germany, etc. Illustrated with 63 Half-tone and Line Drawings, 8 Charts and 4 Colored Plates. New York: Rebman Company, 1123 Broadway.

The present tendency toward specialism and the recent advances made in otological surgery influenced the author to feel the necessity for a work dealing exclusively with the surgery of the ear.

The volume presented for review is written in the form of a series of monographs. An attempt has been made by the writer to correlate the extensive literature on the subject, and with the benefit of personal experience and observation, to produce a book adapted to the needs of the medical student, the practitioner and the specialist. Each chapter is preceded by an abstract of the substance contained therein and is followed by the citation of the references used. Special stress has been laid on the indication for operation, the points of technique, and the after treatment of the wound, including the consideration of the patient's general condition. The cuts are usually good, but many rough drawings are also used to further illustrate certain points in the text. The quality of paper used is hardly up to the standard one usually sees, and the binding of the book is rather insecure.—R. B. S.

A MANUAL OF THE PRACTICE OF MEDICINE. By A. A. Stevens, A.M., M.D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania. New Eighth Edition, Thoroughly Revised. 12mo of 558 Pages, Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Flexible Leather, $2.50 net.

Of the works which give a brief outline of each disease, Dr. Stevens's is undoubtedly one of the best. Each disorder is reviewed with great clearness and accuracy, the object being to present the salient facts which the mind retains when larger works are read. For the present edition (the eighth) many new articles have been prepared, while those bearing upon the nervous system have been rewritten. We miss, however, a condition frequently met with in practice: cystitis and other disorders of the bladder. The diseases of the skin and its appendages are treated quite fully for so small a work—a fact which makes it all the more useful to the student and practitioner.

ATLAS AND TEXT-BOOK OF THE HUMAN ANATOMY, VOLUME III. Vascular System, Lymphatic System, Nervous System and Sense Organs. By Dr. Johannes Sobotta, Professor of Anatomy in the University of Würzburg. Edited with Additions, by J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy in the University of Toronto; Formerly Professor of Anatomy in the University of Michigan. With 297 Illustrations, Mostly in Colors. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $6.00.

The third and last volume of Sobotta and McMurrich's atlas and text-book of anatomy is in no way inferior to its predecessors in scientific precision and artistic execution. It includes the remainder of the vascular system (begun in the preceding volume), the entire nervous system, and the organs of special sense. Of material advantage to the student as well as to the surgeon, is the presentation of the nerves and blood-vessels as they are seen in the cadaver, *i. e.*, together. The relations of these structures is thus readily apprehended—an advantage which is totally lost when, as is usually the case, the vessels and nerves are depicted separately. The plates illustrating the nervous system are particularly beautiful and instructive. On the whole, the author, editor of the American edition, and the publishers, are to be highly complimented for the admirable way in which they have performed their respective tasks.

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Clinical Lectures

TYPHOID FEVER—SYPHILIS.

BY JOHN V. SHOEMAKER, M.D., LL.D.,
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TYPHOID FEVER.

GENTLEMEN:—I have the pleasure this morning to show you a patient who presents a typical history and symptoms of an acute infectious disease.

The patient is a male, age 41 years, nativity Poland.

Family History:—His parents are both dead. The father died of pneumonia at the age of 51 years and the mother at the age of 60; cause of death was cancer of the stomach. He has two brothers and three sisters living and well. One brother died at the age of twelve from scarlet fever.

He has no definite knowledge of his grandparents, uncles or aunts, since he came to America when a small boy.

Previous Personal History:—When he was a child he had measles, smallpox and scarlet fever. He had pneumonia at the age of sixteen, from which time he has always enjoyed good health until two weeks ago.

His habits are good; he uses neither alcoholic beverages nor tobacco. He drank Schuylkill water from the spigot.

Social History:—He is married and is the father of five healthy children: three sons and two daughters. The wife is living and in good health. He denies having had any venereal diseases.

Present Illness:—Two weeks ago he first began to feel tired and languid. His appetite became poor and his bowels constipated. He also had headache and a slight cough. Five days ago he first called in his family physician who had him transferred to the hospital.

On admission to the hospital his temperature was 103⅗° F., pulse 88, respiration 22 per minute. A physical examination showed that the skin was dry and hot to the touch and that over the abdomen and back were many small rose spots, which disappeared on pressure. The lymphatic glands are not enlarged. The odor of his breath is offensive; the tongue is dry and parched and the teeth are covered with sordes.

The organs of the chest are apparently normal. The spleen is markedly enlarged and he complains of tenderness in the right iliac fossa. We also obtained a positive Widal and Diazo reaction.

Diagnosis:—This is undoubtedly a case of typhoid fever. The history of malaise, anorexia, constipation and headache, together with the physical signs of elevation of temperature, no accelerated pulse, normal respiration, rose spots, enlarged spleen, iliac tenderness and a positive Widal and Diazo reaction are all pathognomonic of typhoid fever. The symptoms in this patient are so typical that it could not possibly be mistaken for any other disease. However, in obscure cases care must be exercised and a differential diagnosis made between it and typhus fever, typho-malarial fever, septicæmia, acute tuberculosis and relapsing fever.

For your convenience we have placed on the blackboard the differential diagnosis of the diseases mentioned.

Differential Diagnosis.

Typhoid Fever.

1. Disease is endemic.
2. Onset slow.
3. Eruption of roseate spots appears from 7th to 10th day.
4. Eruption disappears on pressure.
5. Temperature characteristic for each week of disease.
6. Course longer.
7. No crisis.
8. Diarrhœa.
9. Gives Widal reaction.

Typhus Fever.

1. Disease is epidemic.
2. Onset sudden.
3. Appearance of maculæ which are transformed into petechia on the 4th day.
4. Does not disappear on pressure.
5. Temperature high from the first and remains so until the crisis.
6. Course shorter.
7. Abrupt termination by crisis.
8. Constipation.
9. Does not give Widal reaction.

Typhoid Fever.

1. Onset slow with chilly sensation.
2. Temperature rises slowly and gradually.
3. Characteristic eruption.
4. Diarrhœa characteristic.
5. Presence of typhoid organisms.
6. Gives Widal reaction.

Typho-Malarial Fever.

1. Onset sudden with a marked chill.
2. Temperature rises suddenly and is periodical in character.
3. No characteristic eruption.
4. Diarrhœa not characteristic.
5. Not present.
6. Absence of Widal reaction.

Typhoid Fever.

1. Temperature characteristic.
2. Characteristic eruption.
3. History of exposure to typhoid poison.
4. Presence of Widal reaction.

Septicæmia.

1. Temperature very high and irregular from first.
2. No eruption.
3. History of injury or infectious disease.
4. Absence of Widal reaction.

Typhoid Fever.	*Acute Tuberculosis.*
1. Disease is endemic.	1. Disease is hereditary or secondary.
2. No leucocytosis.	2. Leucocytosis.
3. Peculiar temperature curve.	3. No peculiar temperature curve.
4. Presence of lenticular spots and abdominal symptoms.	4. Absent.
5. Presence of typhoid bacilli.	5. Presence of tubercle bacilli.
6. Gives Widal reaction.	6. Does not give Widal reaction.
7. Countenance flushed.	7. Countenance not flushed.
8. Choroid normal.	8. Tubercular ulceration of the choroid.

Typhoid Fever.	*Relapsing Fever.*
1. Onset slow.	1. Abrupt onset, rigor, high temperature.
2. Duration longer.	2. Duration brief.
3. No crisis.	3. Termination by crisis.
4. Characteristic eruption.	4. No characteristic eruption.
5. Gives sero-reaction.	5. Does not give sero-reaction.
6. No relapse at end of week.	6. Occurrence of relapse at end of week.
7. Presence of typhoid bacilli.	7. Finding of spirilli.

Pathology:—The specific lesions of typhoid fever occur in the lymphatic structures, notably in the solitary follicles, Peyer's patches, mesenteric glands and the spleen. The lesions thus produced are due (1) either to a direct effect of the typhoid bacilli upon these lymphatic structures or (2) to the continued fever and infection. The former are called primary lesions while the latter are called secondary lesions.

The most striking changes occur in the solitary follicles and Peyer's patches, particularly in the ileum near the valve and to a lesser extent in the lower part of the jejunum. These lymph follicles become engorged, due to a marked dilatation of the capillary blood-vessels. Later the glands take on a whitish or anæmic appearance due to a compression of the engorged blood-vessels as a consequence of cell infiltration. The mucosa and muscularies adjacent to the glandular structures may become similarly infiltrated with these large, round epithelioid cells and which may undergo granular or fatty degeneration followed by absorption. This infiltration terminates from the eighth to the tenth day either in resolution or necrosis. However, when resolution occurs, small hæmorrhages take place in the intestinal glands, thus forming dark pigmented spots which give rise to a condition known as the "shaven beard" appearance. This stage is known as the stage of medullary infiltration.

The stage of necrosis or sloughing begins between the eighth and tenth days and terminates on or about the twenty-first day. This sloughing is due partly to the clogging up of the blood-vessels by the cell infiltration and partly as a result of the direct action of the typhoid bacillus. After the necrotic portions have been cast off an ulcer is left. The ulcerated surface has an irregular outline with necrotic edges. The border is usually raised. The floor of the ulcer is usually the submucosa or the muscular coat. It may extend until it reaches, or even perforates, the serous coat. Then the discharges of the necrotic material may cause peritonitis, which is usually fatal, and hæmorrhages may be caused by the erosion of the blood-vessels, due to the

extensive necrosis. In the lower third of the ileum the small, deep ulcers are more prone to perforation than the larger ones. Diffuse peritonitis may be caused without perforation, due to a collection of typhoid toxin in the peritoneum, from a rupture of suppurating mesenteric glands. The ulcers resulting from the destruction of the solitary follicles are rounded, while those involving Peyer's patches are elongated, the long axis being parallel with the axis of the intestine. At the lower end of the ileum the ulcers often coalesce until they almost encircle the bowel. Ulceration may extend to the appendix, where perforation may take place. After the ulcer is formed, healing takes place. This process advances onward from the border of the ulcer dislodging the necrotic crust. When death occurs during a relapse, fresh ulcers are found by the side of the partially healed ulcers.

The changes in the mesenteric glands occur simultaneously with those in the intestines. Similar changes take place contributing to their enlargement, those situated opposite the lower third of the ileum being first and prominently involved. These glands show great variation in size, and later they become larger, harder and of whitish appearance. Resolution occurs quite commonly, and if this does not take place, the central part of the gland begins to undergo necrosis. In most typhoid cases the spleen becomes enlarged, due to active hyperæmia, the organ generally reaching twice to three times its normal size. In rare cases there has been rupture of this organ. Suppuration may be brought about as a result of infarction. Very rarely perisplenitis or abscess may occur.

Among the organs more rarely affected with lesions is the liver. It becomes hyperæmic, and later softer and paler than is natural. The cells show granular and fatty degeneration. Pylephlebitis has followed abscess of the liver and the mesenteric glands. Typhoid bacilli are often found in the gall-bladder in fatal cases, and in some perforation has been met with.

The kidneys show parenchymatous degeneration and granular degeneration of the renal cells. More rarely the lesions are those of acute hæmorrhagic nephritis, and the kidney substance may present small lymphomatous foci.

Among the changes often found in the lungs are hypostatic congestion, pneumonia, embolic infarction and gangrene. Pleurisy is rarely met with. Among the rarer of the changes are œdema of the glottis, ulceration of the larynx, and necrosis of the laryngeal cartilages. Catarrhal, or even croupous pharyngitis, may occur.

The circulatory system may be the seat of moribund changes. Endocarditis and myocarditis may be present. The muscle fibers suffer parenchymatous and hyaline degeneration. There may be thrombosis of the right side of the heart and veins, especially the femoral. Very rarely petechial or large hæmorrhages, and abscess may be found in the intermuscular tissues.

The blood in typhoid fever presents few alterations. Leucocytosis is absent, and there is often a leucopenia, the mononuclear leucocytes predominating. The red corpusles are increased during the febrile period, but decreased during the convalescent period.

The nervous system presents no gross lesions. Meningeal hæmorrhages have occurred in a few instances. Slight œdema of the cerebal cortex has also been noted. Meningitis is a rare event.

Etiology.—The definite cause of typhoid fever is the specific bacillus of Eberth, which was discovered by him in 1880.

It is a short, thick bacillus, whose length is three micromillimeters and breadth one micromillimeter, and has rounded ends. It is a motile organism due to the presence of cilia on both sides, and it stains readily with the aniline dyes. Contains vacuoles which were thought to be spores during the early days of observation; which, however, is not the case. The bacillus typhosus has been confused with the bacterium coli commune on account of their almost identical morphology and characteristic growths upon the different culture media. However, the differential characteristics of the two bacilli have been pointed out by the recent investigations of bacteriologists. On a potato which has been slightly acidified this bacillus of Eberth forms a transparent growth. Fatal results have occurred, due to the inoculation of cultures of these bacilli into animals. It has been demonstrated that they possess great vitality and multiply very rapidly in the drinking water, milk and soil. Their thermal death point, according to Sternberg, is 156° F. (69° C.), and they have been kept alive by him for one year in hermetically sealed bouillon cultures. Cold does not kill them, as they have been repeatedly thawed and frozen. The bacilli are very active in distilled water, and retain their vitality for three months; but they are destroyed in ordinary water, due to the presence of saprophytes.

In the human body the bacilli have been in the blood, bile, intestinal tract, spleen, liver, lymph glands and the rose-colored spots. They have also been found in the stools of about 50 per cent. of the cases, the urine, sputa, foci of suppuration, and the pleural, endocardial, meningeal exudations.

The methods of conveying the poison into the human body are through the dejecta of patients suffering with typhoid fever; this may take place through the careless attention to the discharges from the typhoid fever patients, and from food contaminated by the contagion from the common house fly. The infrequent contagion of those attending to typhoid fever patients, such as the physician and nurse, is explained by the fact that they are infected through the stools and the careless disposition of the discharges, whereby they are allowed to dry, thus liberating the bacilli and so contaminate the air. These bacilli then settle upon the tonsils, pharynx, etc., and in this manner enter the different channels of the body. Many cases of typhoid fever have been caused by oysters whose beds have become infected with water polluted by sewage.

The typhoid bacilli get into the body by deglutition and inhalation. Most of them, when they get into the stomach, are destroyed by the acid secretions of the glands. Some, however, pass into the intestines where they find favorable conditions and media in the alkaline secretions, and so begin to multiply. They then penetrate the intestinal wall and attack the solitary follicles, Peyer's patches, and reach the circulation, spleen, liver and other organs a little later. Other bacilli reach the blood-stream through the respiratory tract.

Typhoid fever is a disease which occurs in adolescents, also in robust individuals between the ages of fifteen and thirty years. It is less common in children, but cases have been reported in very young babes. The disease is most common at the end of summer and beginning of autumn. Although the disease may occur during other months of the year, nevertheless spring yields the fewest cases. It is more apt to be prevalent after a hot and dry summer.

Pettenkoffer and Buhl have contended that more cases succeed seasons when the standing water in the soil reaches a high level than when the springs are low and the upper layers of the soil comparatively dry. This has been explained as due to the fact that the germs remain *in situ* when the ground-water is high, but when the ground-water is low the constant circulation between the air in the loose soil and that above it conveys the germ upwards, and they then pervade the air accordingly. Cases of typhoid fever have been observed following intestinal catarrh. Nervous diseases, such as mental excitement and overwork, are predisposing causes.

Treatment.—No special routine treatment can be set forth in the successful treatment of this disease. Each patient needs individual attention and to be treated according to the merits of the symptoms as they arise. In some cases of high temperature the tepid sponge bath will reduce the temperature as much as the ice-water sponge; while in others it has no value, and the ice-water sponge must be employed to obtain results. In patients where the temperature does not exceed 103° F., an alcohol rub will, in some cases, reduce the temperature two degrees, and again in others, the ice-water sponge must be employed to produce an impression.

In asthenic patients it is never well to employ very cold sponges. Whenever the temperature exceeds 102⅖° F. a "temperature" bath should be given. An ice-bag applied to the head is very valuable to relieve the headache, and also assists in keeping the temperature down.

The diet is of great importance. Foods that leave very little or no residue, and that are easily digested in the stomach, or that are predigested, should be employed. An absolute liquid diet of peptonized milk, broths, lemon and orange albumin and expressed beef-juice produces better results in my patients than the now semi-solid diet employed by some physicians.

Medicinally we are giving this patient for its antiseptic and antipyretic action, a capsule containing:

℞ Strychninæ sulphatis ..... gr. 1/60.
Quininæ bisulphatis ..... gr. iss.
Phenylis salicylatis ..... gr. iij.
M. Fiat capsula No. i. Sig.: One such capsule every three hours.

Also after each feeding he gets ten minims of dilute hydrochloric acid. For his constipation he gets an enæma daily containing six ounces of soap suds and three ounces of glycerin.

A fact not to be neglected under hygiene is the careful disinfection of all the dejecta. To avoid middle-ear infection, the mouth and nose must be cleansed thoroughly and frequently with mild antiseptic solutions.

SYPHILIS.

The next patient is an interesting case, a young woman, age twenty-eight years. Nativity, United States.

Family History.—Her parents are both dead. The father died at the age of seventy-eight years, cause apoplexy; and her mother died of nephritis at the age of sixty-four years. She has two brothers and one sister, all of which are in good health.

Previous Personal History.—As a child she had measles, mumps and diphtheria. At the age of sixteen she had typhoid fever, which was not followed by any complications, and her recovery was good.

Social History.—She is single, and is a domestic by occupation. She admits of having a venereal sore situated on the left labia majora. Upon examination of this lesion we find it to be a shallow ulcer about the size of a pea, and from it exudes a scanty, serous fluid. It is dark-red in color, indurated, and there is enlargement of the neighboring lymphatic glands.

We also observe an eruption upon the trunk and limbs which consists of a number of large flat papules, which vary in size from a small shot to a bean. The majority of these eruptions are scaly, elevated above the surrounding surface, firm, smooth to the touch and possess a characteristic copper color. Some of these eruptions have undergone desquamation, and have been transformed into moist and squamous papules. These flat papules are found in the axilla, under the mammæ and the perineum.

Symptoms.—She appears to be very despondent, and is very irritable. Her appetite is impaired, bowels are constipated, urine is scanty and high colored, and the patient experiences a general sensation of malaise. She also complains of insomnia, headache and pain around the joints and in the bones.

Diagnosis.—From the characteristic lesions present, namely, the chancre, the large, flat, papular syphilide, and from the symptoms which I have mentioned before, we are able to diagnose this case as one of secondary syphilis of the large flat papular variety.

Differential Diagnosis.—The only affections resembling the large papular syphilide are lichen planus, acne and psoriasis. The points of difference are briefly and clearly shown on the blackboard.

Papular Syphilide.

1. Lesions are round and oval in outline and not depressed in the center.
2. Lesions are diffused over several regions of the surface.
3. Lesions are not covered with waxy scales.

Lichen Planus

1. Papules are angular in outline and depressed in the center.
2. Papules never appear on the face or neck and are limited to the forehead, arms and legs.
3. Covered by large, waxy, translucent scales.

Papular Syphilide.

1. Lesions are diffused over several regions of the body.
2. Papules have a copper color.
3. Papules run a protracted course and frequently recur.

Acne.

1. Papules are acuminated in form and confined to certain regions of the body.
2. Papules are bright red in color.
3. Papules are more brief in duration, frequently becoming pustular and disappearing by absorption.

Papular Syphilide.	*Psoriasis.*
1. History of syphilis.	1. History perhaps of previous outbreaks.
2. Scales are scanty and possess a dirty-grayish color.	2. Scales are abundant, lamellated and silvery.
3. Itching usually absent.	3. Itching present.

Pathology.—The syphilitic process is characterized by distinctly circumscribed and homogeneous cell infiltration. The induration of the initial lesion is produced by infiltration of the papilla of the corium and the subcutaneous connective tissue with small, round, nucleated cells, composed of finely granular protoplasm. They all penetrate into the walls of the cutaneous vessels and lessen their calibre. This increased pressure upon the arterioles causes an interference with the nutrition, and finally results in ulceration. Adjacent adenitis develops, and soon becomes general. The mucous patch has its seat on the mucous membrane or soft, moist skin. It consists of an inflammatory infiltration of the papilla of the corium and epidermis with small cells. The macular syphilide is characterized by round cell infiltration in the papilla of the corium and around and within the walls of the papillary vessels. The papular lesions are due to circumscribed, dense, round cell infiltration in the papillary and sub-papillary layers of the corium, and in the upper portion of the subcutaneous connective tissue. In the pustular lesions there is more or less exudation or migration of the leucocytes preceded by round cell infiltration of the corium and its vessels. The tubercles or gumma consist of small round cells, in which coagulation necrosis takes place in the centre, due to local anæmia, and there is a conversion of the peripheral into fibrous tissue. The gumma originates around small blood-vessels, which become surrounded by a mass of round cells intermingled with fibrillated tissue, forming a coarse reticulum. The various lesions of the muscular, fibrous, osseous, and nervous systems, and of the internal organs, are also due to cellular proliferation and infiltration.

Etiology.—Syphilis is due to the entrance into the system of a specific parasite—Spirochæta pallida, discovered by Shaudinn and Hoffman. Syphilis can be communicated by direct or indirect contact, or by hereditary transmission. The most ordinary method is by sexual intercourse with the one diseased. The system may be infected by the entrance of the parasite through an abrasion, fissure or laceration, etc. This disease may also be acquired by indiscriminate kissing, or by using the towels, knives, spoons, forks and other articles which have previously been used by the diseased individual. The wet-nurse may infect the mouths of sucking babes, or the infant may infect the nipple of the nurse. Many cases of acquired syphilis are caused by sexual intercourse. Physicians are not infrequently infected in midwifery practice, the initial lesion making its appearance on the fingers. Vaccination has also been a means of infection. Cases have been reported in which infants have been infected, caused by the mother washing the eye-lids of the infant with spittle, and it has also been transmitted by bites. Syphilis may also be transmitted to the offspring through the father and mother. However, a syphilitic father or mother may beget healthy offspring, the infant having acquired some immunity which protects it from its mother.

Treatment.—In suspicious cases it is well to make a microscopic examination of the lesion, and if the spirochæta pallida is present in the serum of the lesion, it is folly to wait until the secondary lesions appear. During the primary stage more good can be derived by specific treatment in one week than can be derived in one month during the secondary stages.

The treatment of these patients, of course, is constitutional, and the remedy *par excellence* is mercury. In the secondary stage hydrargyri cum cretæ is the preparation to be employed, especially in patients who have a derangement of the digestive organs, as in this case. We will give a prescription containing:

℞ Hydrargyri cum creta ..... gr. iij.
Pepsini,
Phenylis salicylatis, of each ..... gr. ij.
M. Fiat capsula No. i. Sig.: One such capsule three times a day.

Tonics such as iron, arsenic, quinine and the vegetable alteratives are all valuable remedies, and should be substituted for a few weeks when the mercurial treatment cannot be continued owing to its full physiological action.

Locally, for the rough and scaly condition of her face, the following ointment will meet the special requirements:

℞ Hydrargyri ammoniati ..... gr. xx.
Camphoræ,
Phenolis, of each ..... gr. x.
Acidi salicylici ..... gr. xx.
Unguenti aquæ rosæ ..... ℥j.
M. Fiat unguentum. Sig.: Apply locally to the face twice daily.

The diet of all these patients should consist of plenty, wholesome, well-cooked and nutritious foods, to increase the quantity and quality of the blood. Hygienic measures must not be neglected. The patient should frequently take hot baths to assist elimination.

Prognosis.—As to life the prognosis is good, provided the patient takes treatment for a sufficient length of time during the secondary stage of the disease. But when the disease is allowed to go on without treatment until the tertiary stage is reached, the patient will, sooner or later, suffer from grave symptoms. The nervous system may become involved, and syphilitic lesions occur in the brain, rendering the case hopeless.

Original Articles

MEDICAL MISSIONS.

By R. C. THOMAS, M.D.,
ILOILO, PHILIPPINE ISLANDS.

Since misconceptions concerning medical missions are broadcast in the medical profession to-day, a few words of explanation may be of interest concerning their origin, their status in the matter of methods and equipment, and the opportunity they offer the practitioner.

Origin.—The pioneer medical missionary from America was Dr. John Scudder, of New York City, who went to India in 1819. Two years later Dr. Jonathan Price sailed to Burma. Both these men did creditable work, though Dr. Price lived but seven years after reaching his field. In 1834 Dr. Peter Parker, who is familiarly known as the man who "opened China at the point of the lancet," landed in Canton. Through his agency the Medical Missionary Society of China was organized in 1838. From this time onward the cause of medical missions continued to progress, growing by leaps and bounds during the last few years, until now there are over 750 medical missionaries representing the missionary societies of the world.

Methods and Equipment.—Medical missionary methods are, so far as conditions allow, fully up-to-date. Naturally lack of funds, native ignorance and superstition are hindrances to the highest degree of asepsis and surgical technic, but in spite of these drawbacks the general status of the work is exceedingly creditable. Modern medical missionaries are generally graduates of both medical school and hospital, who go to the foreign field because they feel called to the work, and not because they fear they could not secure a practice at home. Moreover, as a rule these men are progressive in their aims and secure hospitals early in their missionary career. Some of these hospitals are in no way inferior to those in our own land, and the character of the work done is entirely modern. Trained nurses from American hospitals carry on the routine schedule of duties in the wards with the same painstaking attention to detail as at home. In such institutions as these, major operating may be carried on upon a large scale, as for example, in the mission hospital in Tokyo, where 2,000 abdominal sections were performed in less than seven years.

The Opportunity Offered.—To the young practitioner, depending for his livelihood upon the "psychic disturbances" of a few rich families in the wealthy district which he has chosen as the proper place to allow his "shingle" to become weather-beaten, medical work in a foreign land should offer an alluring opportunity. In the first place, patients are plenty. One of the most attractive features of foreign work is the enormous amount of so-called "material." Thousands upon thousands of the sick flock to the doctor. In 1902, for example, it is declared upon good authority that 6,500,000 patients were treated in Asia, Africa and Oceanica.

The great variety of diseases to be found in this horde of Orientals constitutes another appeal to the scientific practitioner. Trypanosomes, Leishman Donovan's bodies and other elusive denizens of the tropics court his attention. If the past augurs anything for the future, frequent discoveries may be expected in pathology, bacteriology and other branches of medical research. Dr. W. W. Keen, of Philadelphia, states that quinine was given to the world by the Jesuit missionaries of South America, "while the Calabar bean, the kola nut and strophanthus we owe to Dr. Nassau, an African missionary. Much of our knowledge of cataract, lithotomy, elephantiasis, leprosy and many other tropical diseases comes from medical missionaries." These and other important additions to medical science have been made in the past, and who can tell in this age of opsonic treatment what may be in store for the future.

Finally, the need for medical work is incomparably greater abroad than it is at home, whereas the provision for that need is incomparably less. This fact, in itself, should promise a most welcome opportunity to the conscientious medical man, who is in the profession more for the good he can render to the world than for the dollars and cents he can squeeze out of it. One needs but to glance at the statistics to discover how insignificant is the provision for this need abroad in comparison with that made in our own land. The proportion of physicians in mission fields to those at home is but 1 to 4,000. In the United States there is one physician to every 636 persons, whereas in foreign mission fields there are countless thousands with no medical aid whatever. Moreover, as already stated, this dearth of medical aid is the more pathetic when one realizes the prevailing ignorance of medicine. As a sample of the conditions that obtain, we learn that in China the native doctor ascertains from the right pulse the maladies of liver, heart and kidneys, while the left pulse is the monitor for the other organs. The pulse is the important medical asset of the Chinese practitioner, and at this point the methods of his foreign confrère are appreciated, though sometimes he labors under difficulties, as when the Chinese lady, being too modest to face a strange man, tied a string around her wrist and dangled the string out of the window, as a less vulgar method of bringing him into contact with her radial artery. In this same land "wind" in the bodily organs is supposed to be the cause of disease. To relieve this pneumatic pressure needles from three to six inches in length are thrust into the skin, as many as sixty or more having been thus administered to the scalp of a single patient. In fact, once such a needle was thrust through the thorax with fatal result. The treatment of the eye is often barbarous, as when ground glass is used as a medicament, and as in one recorded instance, when the eye-ball was pierced to "let in more light." Again, to quote from a writer on India, we are told that "in anatomy there is an elaborate system of guesses, and the people are taught there are 900 bones in the body; that there is no difference in structure or function of nerves, veins, arteries and ligaments, and that the pulse is an organ independent of the heart." Again, in the Friendly Islands of the Pacific, it is the custom to bury alive those in delirium, and of one such unfortunate we are told that he twice "burst open his grave," and then was tied to a tree and allowed to starve. Moreover, in the matter of public health the conditions that prevail are as bad. Dr. Keen declares that in Burma he saw "hundreds of pilgrims drinking the green scum-covered water of many a temple tank," as well as "hundreds of others drinking the foul waters of the Ganges at Benares, while other hundreds at their elbows were washing themselves and their clothing in the river, with decaying bodies of animals floating on the tide, and a large sewer delivering its filth into the same stream less than three hundred feet away." To one who has lived in the tropics and witnessed the ravages of cholera, such a recital is doubly impressive, as it is known for a certainty that the spirillum that begins its mischief at such polluted sources as this will continue to create havoc later among millions in distant towns, simply and solely because these poor people are too ignorant to boil their drinking water. The welcome change from a somewhat similar state

of affairs in the Philippines to modern methods of sanitation, the writer can say from experience, has been a delightful contrast to this dark picture described by Dr. Keen, as well as a happy portent for the future in all these lands that are being brought under the sway of modern medicine.

The time has passed when young medical men should need to be "induced" to undertake medical mission work. Medical missions have ceased to be an experiment. The names of David Livingstone, Peter Parker and John Kenneth MacKenzie are not to be discounted when testing values in medical achievement. The tremendous impetus of the movement, which as early as 1902 boasted 379 hospitals and 783 dispensaries, is in itself an unanswerable argument to those who would speak disparagingly of it. The undertaking must be recognized as well worth while by fair-minded medical men, and the call to such a service as this of the foreign field to treat uncared-for millions, to foster correct sanitation amid untutored races and to endeavor to enrich the world of science by research in isolated regions, cannot fail to appeal to a man of genuine scientific and humanitarian caliber. For the Christian physician, to these other motives must be added the most profound of all—the opportunity of uplifting the degraded to the highest plane of living—a pure Christianity.

THE SYMPTOMATOLOGY AND DIAGNOSIS OF THE ENLARGED PROSTATE.[1]

By H. M. CHRISTIAN, M.D.,

Clinical Professor of Genito-Urinary Diseases, Medico-Chirurgical College; Genito-Urinary Surgeon, Philadelphia General Hospital; Professor Genito-Urinary Diseases, Philadelphia Polyclinic.

Clinically speaking, I believe that the cases of enlargement of the prostate that are forced to consult the physician will be found in one of the following classes:—

1. Prostate moderately enlarged; some increased urinary frequency, nocturnal and diurnal; little or no residual urine; urine sterile.

2. Prostate decidedly enlarged; marked increased urinary frequency; two to four ounces of residual urine; urine sterile.

3. Same condition as just described, with a more or less infected bladder.

4. Enlargement with chronic retention either complete or with overflow.

5. Marked enlargement with large amount of residual urine; atony of bladder and chronic cystitis, causing frequent and painful urination both night and day.

1. Increased urinary frequency, chiefly nocturnal in character, is the earliest and most frequently encountered symptom of the affection. There can be no doubt that many cases of hypertrophied prostate never develop beyond this point. Just what percentage of old men are living useful and comfortable lives, save for the fact that they are compelled to rise two or three times at night to urinate, it is almost impossible to estimate.

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[1] Read before North Branch Philadelphia County Medical Society.

In many patients enlargement of the prostate never causes any but these slight symptoms of increased urinary frequency. Deaver states that about seven per cent. of prostatiques are forced to seek the aid of a physician.

Many, I believe, live their lives through without the knowledge of the existence of a prostate gland, the nocturnal urinations being performed in an automatic manner and hardly, in most cases, disturbing their sleep. In the early stages of hypertrophied prostate, where there is little or no residual urine, the increased urinary frequency is in all probability due to the intense hyperemia and hyperæsthesia of the posterior urethra, and the mucous membrane of the trigone of the bladder due, in large part, to mechanical obstruction.

It has always been supposed that these factors are more in evidence when the patient is in the recumbent position, owing to the force of gravity, hence, the well-recognized significance of nocturnal urinary frequency as a symptom of prostatic enlargement. I am not so sure that this is a convincing explanation of a well known clinical phenomenon.

2. Difficulty in starting the stream is a common symptom, many patients stating that the only satisfactory act of urination that they have is that obtained in the morning at the usual stool. It is easy to understand why this should be so. In the normal act of urination, at such time as the bladder becomes full, the posterior urethra dilates and for the time being becomes part of the bladder itself. This condition of affairs cannot of course obtain where the posterior urethra is bound down hand and foot by a prostatic overgrowth. The character of the stream is very much altered. There is inability to project the stream from the body, *i. e.*, there is loss of the so-called parabolic curve. Along with this is persistent dribbling after urination, a most annoying symptom, I find, to men of a temperamental mind, as the persistent and increasing staining of their trouser flies is only another forcible evidence of the passing of time.

This dribbling, of course, is a mechanical proposition and is due to the inability of the bladder, owing to the resistence at its neck, to empty itself promptly. As pointed out by Mansen Moulin, the voluntary muscles dealing with the act of urination are not at fault, but the bladder, as a matter of fact, is unable to pass the urine along into their hands.

3. Complete or partial retention of urine. Incontinence of urine with retention.

Where retention of urine depends upon the presence of an enlarged prostate it will occur in one of two forms, viz: (1) acute complete retention; (2) chronic incomplete retention.

In the first variety the retention occurs suddenly, and is complete—no urine being voided. The patient is seized with the attack in the midst of apparently perfect health, after exposure to cold or damp; or perhaps after excessive drinking of gin or whisky.

Constipation is not an unusual occurrence, and is an important factor in these cases.

Examination of the rectum will show in all instances marked enlargement of the prostate, but the gland will feel soft, as if very considerably congested. In fact, acute complete retention occurs most frequently in those cases where

the hypertrophy is of the glandular or soft variety, such a prostate being especially prone to congestion, as a result of exposure to cold, intemperance or constipation.

In the second form, that of chronic incomplete retention, the retention does not occur suddenly, nor is it complete, the patient being able to pass some little urine, but in small quantities at frequent intervals.

The causes operating to bring about chronic retention are (1) gradually increasing obstruction to flow of urine produced by growth of the gland, and (2) corresponding loss of power in the detrusor muscles of the bladder, with consequent inability to empty the bladder, the result being the gradual accumulation in the bladder of residual urine. As this residuum increases in amount the atony of the muscular coat of the bladder becomes more and more marked until finally all power to expel the urine being lost, the bladder overflows and there results a constant dribbling of urine, the condition known as the incontinence of retention.

Regarding chronic infection of the bladder there is little to be said save that it is the sword of Damocles hanging over the head of every man with enlargement of the prostate gland.

There is, of course, here the large and potent element of immunity. Many cases, of course, go through their lives without any infection, and I might remark right here that it is not the size of the hypertrophy that determines a prostatic's health and happiness as much as the question as to whether his bladder is or is not infected. The man with a fairly high degree of hypertrophied prostate is capable of leading a fairly comfortable and useful life, so long as his bladder remains free from infection.

Diagnosis.—It would not seem as if the diagnosis of enlargement of the prostate should prove to be a very difficult matter. When a man over sixty complains of nocturnal and diurnal frequency of urination, with difficulty in starting the stream and with considerable dribbling and loss of force in projecting the stream, one is almost of necessity, led to the conclusion that he is dealing with a case of hypertrophical prostate. When such is suspected, physical examination will determine the true character of the case.

There is, in the first place, the examination by the rectum. This will, in a majority of cases, not only show approximately the amount of the enlargement, but also its character, whether it is small and hard or large and soft. In this connection, it must be borne in mind that many cases exhibiting most active symptoms of urinary obstruction fail to show any or but little enlargement upon rectal examination. In these cases we are probably dealing with an intra-vesical projection of the so-called middle lobe. Here the length of the urethra along with the determination of the residual urine, if any, becomes an important factor. The examination of the rectum with the left forefinger while a stone searcher is held in an inverted position against the prostate with the right hand, gives a most excellent method of determining both the urethral length and also the thickness and general character of the hypertrophy.

While it is a well known fact that stone in the bladder is often found associated with enlargement of the prostate the physical signs and symptoms

presented by the two diseases are so dissimilar that I can hardly consider the possibility of their being confounded.

In calculus there is pain connected with the urinary act; in addition to this there is hematuria, there is no failure in the force of the stream and the frequency of urination is greatest during the day time and is increased by motion.

The diagnosis between benign enlargement of the prostate and malignant disease of that organ is often a most difficult if not impossible question to decide prior to operative procedure.

Possibly the impression received by digital examination through the rectum should be of some aid. As a general rule I think that it can be stated that in malignant disease the prostate is somewhat irregular in contour and of stony hardness—a condition rarely met with in the non-malignant enlargement. Hematuria is a most common symptom and what I have noted in the two or three cases I have encountered is an obstinate sciatica, extending along the whole length of the nerve.

AIDS TO SUCCESSFUL RESULTS IN THE BASSINI OPERATION FOR THE RADICAL CURE OF HERNIA.

By ERNEST LAPLACE, M.D.,

PHILADELPHIA.

While the anatomical basis of the Bassini operation for the radical cure of hernia makes this operation an ideal one, it has often happened that unforeseen suppuration of the subcutaneous cellular space and deeper structures has brought on complications, whereby the ultimate success of the operation has been jeopardized.

I have watched series of cases in various clinics, and it is fair to say that in spite of most careful aseptic precautions and blameless catgut and kangaroo tendon sutures, a certain proportion of cases showed suppuration during the healing process. I will grant that an imperfect sterilization of catgut sutures may be the cause in many cases, but eliminating this possibility and tissue malnutrition, there remains the majority of cases of suppuration still to be accounted for. I have concluded that these unfortunate results might be due to oozing of blood taking place in the deeper structures about the internal oblique and transversalis muscle or under the skin, after the operation. The operation, and still at times an accumulation of blood can be detected in the tissues a day or two after the operation. Seeking an explanation for this secondary oozing, which no doubt led to contamination and subsequent suppuration, I concluded that the movements of the patient's leg in bed, notably flexion and extension of the thigh, might account for it. The Johns Hopkins Hospital surgeons practiced the application of a plaster of Paris spica

bandage about the pelvis and thigh to immobilize the limb on the operated side. This offered the serious inconvenience of being difficult of application and not allowing an inspection of the wound for necessary dressings.

In my last one hundred cases of Bassini operation for hernia I have obviated the possibility of oozing and kept the parts at rest effectually by the following procedures:

First: At the time of the operation the utmost care is exercised to stop all oozing by compression and by suture ligatures with very fine silk or catgut.

Second: When the wound is completely closed, an inverted cone compress is applied directly on the line of incision. That is, a gauze roll is made an inch in diameter and as long as the incision, and applied directly on the incision. Covering this is a pad two inches wide and as long as the underlying pad. This is secured in two places by one-inch adhesive plaster. Over this is applied the regular wide section dressing of gauze and absorbent cotton, and fastened in position by broad adhesive straps, snugly applied. It follows that the pressure produced by these straps is multiplied on the line of incision, because of the inverted cone dressing directly applied to the incision. This extra pressure tends to further arrest any capillary oozing and to cause all secretions immediately to pass into the dressing, obliterating at the same time all dead spaces.

The next point is immediately to immobilize the limb on the operated side. This is done by the use of the Liston splint, which extends from the axilla to the foot. The splint is well padded and is fastened by bandaging it for two or three inches about the chest of the patient, again about the thigh and also about the leg. This prevents the patient from bending the leg and causing any oozing. The splint is well tolerated by the patient and is left in place as long as the patient is kept in bed—about twenty-one days. The patients all get well under one dressing and in the last one hundred cases we have not had a single breaking down of the wound by suppuration or any other cause. These results are entirely attributed to the extra local compression removing dead spaces, effectually stopping capillary hæmorrhage, and also to the immobilization of the limb on the operated side by the use of the Liston splints. We therefore recommend the use of these aids to the dressings and after treatment, to improve the final results to be hoped for in the Bassini radical cure of hernia.

Editorials

MODERN AND GRECIAN ATHLETICS.

It was a distinguishing feature among the ancient Greeks to consider corporeal exercise as a no less important factor of education than mental progress itself. No nation ever had a higher ideal of athletics than the ancient Greeks; no where did honorable and beneficial athletics hold a higher place.

They indulged in their exercises in open air gymnasiums, which were scattered throughout the country, and which were supported partly by public and partly by private means. It was here that the people spent a part of the day in athletic exercises. The various exercises, such as running, jumping, throwing the discus or javelin, swimming, etc., were a part of their every-day life. Their primary object was to develop the body together with the mind. The harmonious development of the body, and, indeed, of every single limb, was thought to be of the utmost importance for the attainment of self-conscious determination in the practical demands of life.

At the present time, however, athletics neglect the principle of proportion and harmony that distinguishes all that is best art and development. We do not possess the principle of acting through means of the body on the mind, as was realized in the physical training of the ancient Greeks. Their aim was, "A beautiful soul in a beautiful body." With ourselves, in spite of our addition to athletics, the body takes a secondary place, and after a certain age at least, there are very few men who make systematic exercise an important factor of their every-day life. The Greeks aimed at balance in harmony. They believed in beauty in flesh. This is very well illustrated by their beautiful sculptures, both in manly strength and youthful grace, which gave to the artist and sculptor inspiration and encouragement in the choice of athletic subjects. However, the athletic sports of to-day are not pursued for pleasure or recreation, therefore they are not remedial helps and aids in physical development and improvement. There are some individuals, however, who take exercise for the beneficial effects which can be derived from it. They engage in the various exercises with zeal and enthusiasm, and their common thought is that the more exercise they take, the more favorable it will be to their health. We can thus see that, instead of deriving benefit, they are harmed and their health jeopardized, due to great strain and exertion under which they place themselves.

The idea of the modern athlete is to concentrate the entire energy of his body upon the development of special powers in order that he may overcome his opponent. It is, therefore, easily seen why the modern athletes lack symmetry of development as was attained by the ancient Grecian athletes. They also train beyond their ability, and finally develop their muscular system to such perfection that it is detrimental to the heart, lungs and digestive organs.

The older sports, in which the old athletes competed, were friendly and honorable rivalry, but now it has given way to professional displays. Love of excitement has taken the place of love for sport. Competition has increased to such an extent that modern athletes have discovered that special excellence in certain events could be accomplished by special training. The boxer and wrestler train in order to secure more weight, while the jumper and runner train in order to acquire more activity and fleetness. Therefore, the beauty of development is lost, and results in ill-proportioned and one-sided athletes.

The great evil lies in the fact of overtraining in that particular branch of athletics. We observe that the muscles of the modern athletes are excessively developed at the expense of his vital organs so as to make him fit for his special branch of athletics. These excessively developed muscles being larger and

having more work to perform than other parts of their anatomy which have not reached such a stage of development, will naturally require and consume more nourishment, and consequently they will use up a considerable amount of the nutritive fluids of the body that should serve the needs of other and more important organs. In order to retain the size and development of these muscles he must undergo a special training table and constantly keep himself in trim. This, therefore, necessitates considerable attention and time. Since this muscular development does not prove the basis of the life occupation of the college athlete, and since these well-developed muscles are only temporary, we therefore see why his career is ended suddenly after he is settled in life. Most college athletes, instead of continuing their active athletic work after they have graduated, inevitably drift into more or less confined and sedentary occupations of city life. It is at this time that these well-developed muscles begin to play havoc. It is an established fact that large and well-developed muscles or other organs will not return normally to their primary undeveloped condition. Since this is so, these muscles will undergo atrophy and degeneration, especially fatty degeneration, due to the lack of strenuous exercise required to keep them in their mature condition. The training necessary to preserve such muscular development and to retain it at its health point is practically impossible, even if it were desirable, in the ordinary grinding duties of the life of a physician or other sedentary profession. We also observe that heart affections are not infrequent among athletes. A great majority present symptoms of heart dilatation and valvular defects, as is shown by the characteristic heart murmurs.

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The physical training of the bodily organs is not conducted with a view to the promotion of bodily health and vigor, but to professionalism and a spirit of competition, and emulation has taken the place of friendly rivalry. If exercise was taken for the mere promotion of health, there would be less disease and more symmetry of development. The reason that the ancient Greeks were so healthy was due to the fact that they engaged in appropriate exercise, made intelligent use of air, food, sleep and resorted less to drugs.

THE PINELLAS PENINSULA, FLORIDA.

The subjects of climate and health resorts are among the most important questions confronting us to-day. The natural desire of man for longevity and for the promotion or restoration of health causes many people to annually seek a change of scene and climate, for rest, recreation, and, above all, for its curative effects.

From the heat and discomfort of summer, relief is sought in the mountains or by the seashore. The coasts and woods of Maine, the breezy uplands of Vermont and New York State, the hillsides of Pennsylvania or Virginia, or the wild and beautiful peaks of "The Land of the Sky"—all have their attractions sung by enthusiastic lovers, but, for the winter change, even the most

enthusiastic will admit, that other scenes with more gentle climate must be sought, if benefit to the less robust of physique is to follow.

Such a locality has been found in Hillsborough County, on the western coast of Florida. Here are the "fortunate isles," or, to be more geographically correct, here is the beautiful Pinellas Peninsula, a strip of land forty miles long and averaging about ten miles wide, with Tampa Bay on the east and on the west the Gulf of Mexico, from whose occasional boisterous moods it lies protected by the "Keys," an almost unbroken chain of lovely palm-covered islands stretching along the western side of this peninsula.

Owing to the great length of the coast line in proportion to the area, the Pinellas possesses a climate of remarkable uniformity, whose curative effect is highly recommended. The winter weather is charmingly warm, the breezes invigorating, and yet so mild that health-giving, open air life becomes alluring to the invalid as well as enjoyable to the recreation-seeking tourist. No more attractive home or winter resort could be found in a locality where such general healthful climatic conditions prevail the year round.

In addition to a salubrious and equable climate, the Pinellas is able to boast of attractive scenery. Pine groves, cultivated gardens and orange groves framed in by the blue waters of Bay or Gulf, form a most pleasing picture, while some of the other senses cannot but be gratified by the abundant and delicious fruits, such as oranges, grape-fruit, pineapples, peaches, grapes, figs, melons, strawberries, and many other tropical and sub-tropical fruits, as well as vegetables.

Another factor making this peninsula so well suited for a health resort is, that on it, at the southern end, is the beautiful and rapidly growing city of St. Petersburg—a wide-awake, hospitable and model place, possessing all the advantages of a much larger town in its educational institutions, business enterprises and modern conveniences. Still another fact of importance, especially to the invalid, is the accessibility of the Pinellas Peninsula. The Atlantic Coast Line has a terminus in St. Petersburg, and there is a swift boat connection between that town and Tampa, twenty miles away; the fast and finely equipped steamer "Favorite" making two trips daily, thus making available also the Seaboard Air Line. But while St. Petersburg can be reached in convenience and comfort by both these lines, the writer often advises his patients and friends to use the magnificent routes of the Southern Railway, by which it is possible to go by way of Richmond, the Carolinas and southern Georgia, a most attractive way South, there being many interesting points at which the journey can be broken, a consideration sometimes of much importance to an invalid or delicate person, not only allowing a more gradual change to take place, but permitting perchance much needed rest. Both Richmond and Savannah are pleasant stopping places. Again, it is possible when using the Southern's Roads to return North by a different route from that taken on the journey down. Atlanta may be visited and opportunity is accorded to see Chattanooga with its magnificent scenery, to visit historical Lookout Mountain, to go through the far famed valley of East Tennessee and through the glorious mountain region of northern Carolina, where the charms of the "Sapphire

Country" and "Land of the Sky" may well invite the traveller to linger before proceeding toward Lynchburg, the gate way of the James, and the beautiful Shenandoah Valley. Such a leisurely and interesting trip home will do much to augment the benefit gained by the winter's stay in a region such as the Pinellas.

As has already been said, the climate is so pleasant a large portion of the time may be spent in the open air and sunshine engaged in the most healthful exercises, such as boating, bathing and fishing, or in amusements such as driving, gunning, etc. The clearness of the atmosphere, free from dust, dirt, germs, smoke, etc., has a most beneficial effect on any lung or throat trouble, while the perpetual summer, with its abundance of sunshine and bracing tonic air of the sea, is also very favorable in the treatment of such difficulties, as well as in rheumatism and nervous diseases.

For such diseases as are especially amenable to climatic treatment, the writer heartily recommends the Pinellas, having been acquainted with this locality for a number of years, and having, by personal investigation, satisfied himself that it is designed by nature as a sanatorium. He also speaks from personal experience with reference to its beneficial effects, having sent there since 1890 several hundred patients with uniformly splendid results. Among those sent have been some of our most prominent people, and cases which have baffled the best skill under more severe climatic conditions.

He has advised a considerable number of patients whose conditions were especially baffling to go to the St. Petersburg region, in order that they may spend the pleasant winter there. In those patients who, following advice, went there during the earlier stages of the disease, the climate alone frequently effected complete recovery. These beneficial effects the writer attributes as due to the balmy air laden with ozone and the balsamic emanations from the surrounding pine forests. It is surprising to note how rapidly weakly children recuperate, as well as patients suffering with chronic rheumatism, gout, blood diseases, chronic bronchitis, asthma, and nervous diseases. This advance toward well-being is easily explained by the improvement in digestion, which in turn increases the appetite and restores the lost energy and strength. The strain upon the kidneys is reduced, and the entire organism feels the difference.

Good health is naturally restored and maintained by the bracing salt air, the pleasant sunshine all day long, and the indescribable restorative effects of the delicious spring-like atmosphere.

Other physicians have already taken advantage of the great benefits to be derived by their patients from this climate. The last written opinion of Dr. Levis on this climate is here quoted: "The situation is far enough South to be secure from the chilling influences, and not so far as to be inflicted with insect annoyances; for outdoor life, at all seasons and throughout all hours of the day and night, this vicinity is unequaled. The climate is peculiarly suited for cases of chronic bronchitis, catarrhal, rheumatic and renal affections. My convictions have been from personal experience after climatic observations of California, the French and Italian Riviera, the North African Coast, the Egyptian Deserts, the Valley of the Nile, and the borders of the Red Sea. It

is remarkable for the limited range of the thermometric and barometric changes, and for the comparative dryness of the atmosphere, it being free from the vicissitudes and severe mists and chilling frost of the California Coast."

All testimony sustains the verdict of the special committee of the American Medical Association in the early 80's, that this is the most healthful of all known regions.

Materia Medica and Therapeutics

BROMIDE AND DEPRIVATION OF SALT IN EPILEPSY.

Drs. Jules Courmont and Crémién tried the combined treatment of bromide and deprivation of salt in a young epileptic whose crisis occurred every ten days at least. Four grams of bromide per diem, with a complete absence of salt from the diet, caused an absolute cessation of the crisis for the thirty-five days during which the treatment lasted. The cessation of the attacks was, however, accompanied by a grave nervous condition, characterized by delirium and suicidal impulse, which passed away with the addition of salt to the diet. The mental phenomena were complex and corresponded neither to epileptic delirium nor to bromide intoxication. The patient, on becoming calm, had perfect recollection of all that had happened in the delirious stage. The pharyngeal reflex was not abolished, the temperature was above rather than below the normal, and there was no bromide rash. It would seem necessary to include the three factors—the epilepsy, the bromide, and the deprivation of salt—in the causation of mental disturbance. (British Medical Journal, November 21, 1908.)

BROMURAL AS A HYPNOTIC FOR CHILDREN.

Professor Ziehen highly recommends bromural, particularly in the severer forms of neurasthenic sleeplessness. His greatest praise of the preparation is, however, devoted to its use as a hypnotic for children. Bromural is a drug which, in spite of the trifling percentage of bromine it contains, exhibits powerful bromine effects. Owing to its freedom from by-effects, it is to be warmly recommended for children in the dose of a quarter, a third or half a tablet, from 1½ to 2½ grains. (Deutsche méd. Woch., 1908, No. 14.)

BROMURAL IN THE TREATMENT OF SEASICKNESS.

Dr. Eugene Perrenon reports that this drug was employed with the best results in the treatment of seasickness. The excellent hypnotic properties were very evident, and the effect on the development of seasickness was very gratifying, especially in nervous, overworked individuals, particularly if the remedy was given prophylactically at the beginning of the trip. In those predisposed to seasickness, from 0.3 to 0.6 grams (5 to 10 grains), according to constitution, were given before the first large meal. This dose was repeated the first evening before retiring, and the same treatment continued on the second, and, if necessary, on the third day. The use of the drug was not followed by any bad effect, such as nausea, loss of appetite, etc. If the treatment was begun later, after symp-

toms of seasickness had already appeared, larger doses were necessary, and the administration had to be continued over a longer period. (New York Medical Monatsch., February, 1908.)

CALCIUM SALTS IN THE TREATMENT OF CONVULSIONS.

Dr. Silvestri states that the treatment of the various convulsive types of disease is based on the hypothesis that these conditions are due, in part, to a diminution of calcium salts in the blood. The author records three cases where benefit accrued: (1) A case of hystero-epilepsy; (2) tetany occurring in successive pregnancies; (3) convulsions in a rickety child. The salt may be given as a hypophosphite, chloride or lactate. Various experiments on animals, clinical facts, and studies in metabolism, in addition to the results of therapy, agree in declaring there is some association between various idiopathic convulsions common to infancy and maternity, and some disturbance in the metabolism of calcium—namely, a hypocalcification of the nervous system. Probably this defect is due to a latent insufficiency or relatively diminished activity in the parathyroid glands. There are a few cases where severe tetany has been definitely associated with injury to the parathyroids. In symptomatic types of convulsion, due to intoxication or infection, a relative insufficiency of the parathyroid should be borne in mind as a causal factor. (Gazz. degli. Osped., October 4, 1908.)

CORSETS FOR PTOSES.

A. E. Gallant, New York, holds that the great majority of the symptomatic movable kidneys can be cured symptomatically by wearing a corset; in fact, he says that his present opinion would be that not more than 1 per cent. require operation. He soon learned, however, that while a corset laced tightly at the waist line would readily support a replaceable kidney the more grave and detrimental chronic gastro-intestinal ptosis and its symptoms were not relieved, but made decidedly worse by the indispensable tightening of the corset at the waist line. He therefore describes the essentials of a corset made to relieve all these symptoms which must be suited to the individual case as carefully as any other orthopædic apparatus. Its essentials are substantially, that it must conform to the fashions or women will not wear it. At the bottom the front steels must overlap the upper half-inch of the symphysis pubis; must reach down low and fit snugly around the hips, stretching tightly across from one anterior superior spine to the other, to flatten and reduce the hypogastrium to a minimum. To prevent constriction the circumference must equal that of the natural waist; at the same time there must be a well-marked incurving of the sides to support the kidney, to prevent slipping and to give a good figure. At the back and sides the upper portion must accurately fit the thorax, while in front ample room must be given for the replaced stomach, and below the waist the corset must be inelastic and inflexible to prevent recurrence of the ptosis of the viscera. Above the waist it should give free play to the chest walls and muscular movements and not embarrass the heart or respiration. He gives details as to the adjustment. It is not advisable to use such a corset (a) when the kidney is not replaceable above the waist line; (b) when the stomach is held down below the umbilicus by peritoneal adhesions; (c) in the presence of pus tubes or pelvic or abdominal tumor. On the other hand, he has seen a most intractable case of vomiting of pregnancy

stopped immediately by pelvic packing in the knee-chest posture and the use of a corset. He sums up the distinguishing features of his plan as follows: "1. Gravity replacement in the semi-opisthotonos posture, massage, exercises, and rest cure. 2. Support of the replaced organs by a special, made-to-order corset of fashionable design 'V'ed' in front, fastened by one lace, inserted from the waist down, put on and laced while in the semi-opisthotonos posture, and worn at all times, except when lying down." (Journal of the American Medical Association, November 7.)

DECAPSULATION OF KIDNEY FOR CHRONIC NEPHRITIS.

Dr. Gatti gives the history of this operation and reports its application in the case of a young man with Bright's disease who survived for twenty-eight months after the bilateral decapsulation. The general health showed marked improvement for twenty months, so that the patient's earning capacity was restored; but then the old symptoms returned, the intervention not having permanently arrested the disease. A new capsule formed around the kidneys, but of compact fibrous tissue with few and small blood-vessels. (Archiv. für klinische Chirurgie, Berlin, October 31.)

ELECTRIC TREATMENT OF ASTHMA.

Dr. Günzel is convinced that asthmatic spasm is frequently traceable to some peripheral point. In one case removal of a small projection in the nose completely cured nocturnal asthma in a boy of five. Besides this class of cases, in 50 cases of bronchial asthma he has applied the high frequency current. This current passed through an aching nerve renders it insensible, and it can be used to induce local anæsthesia, to cure neuralgia, rheumatoid pains, etc. In an acute attack of asthma the electricity rapidly soothes and the spasm subsides. From two to four applications at one-hour intervals relieve and cure the attack of asthma without necessity for morphine. (Journal of the American Medical Association, December 19, 1908.)

EUQUININE IN THE TREATMENT OF WHOOPING-COUGH AND TYPHOID FEVER.

Dr. C. Binz reports excellent results obtained in these diseases with quinine carbonic ether, or euquinine, in two cases who were under close observation throughout their entire illness, and a careful account of the number of attacks per day was kept. In one of the cases there were as many as forty or fifty severe spasms per day, and on the thirtieth day, after treatment was begun with the euquinine, the patient was entirely free from the spasms. The drug is best given in the form of powders or tablets; acid drinks should not be taken immediately after, as euquinine is somewhat soluble in these, and a bitter taste will result. The child receives twice daily as many decigrams as it is years old, and for the first year of life as many centigrams as it is months old, with the exception that for older children the maximum dose is generally 0.75 grams (12 grains) twice daily. During the first year 0.05 grams (¾ grain) may be given twice daily. This drug has an effect on the spasms, and exerts a specific action on the germ in pertussis. (The Clinique, November, 1908.)

EUCALYPTUS IN HÆMORRHAGE.

Dr. A. Todd-White highly recommends the application of the tincture of eucalyptus for the arrest of any form of hæmorrhage. He mentions three cases

in which all means to stop the persistent hæmorrhage failed, but the bleeding ceased immediately upon the application of the tincture of eucalyptus. One case was that of a boy, who had a tooth extracted three days before, and had persistent hæmorrhage from the socket. Another case was that in which there was profuse hæmorrhage from the cut in the patient's foot, and in the last case the hæmorrhage followed the application of a leech to the gum. He also calls attention to the use of this preparation as a dressing on lint after circumcision or other minor operations. (British Medical Journal.)

FORMOL IN THE TREATMENT OF SWEATING FEET.

Dr. Viela (Archives de Medicine et de pharmacie Militaires, March, 1908) relates the use of formol in treatment of sweating feet. Sweating hands are cured by similar treatment, which has the effect of slightly blunting tactile sensibility. The method of application is as follows: On the first day in the morning, at noon, and in the evening the ordinary commercial solution of formol, one-third strength, is painted over the soles of the feet. On the second day three applications are again made, but with a solution of half strength. On the third day three more applications are made with a solution of full strength. Thereafter every eight days a solution of full strength is applied. In many subjects cure is maintained by an application repeated not more frequently than once in fifteen or twenty days. When the epidermis is greatly macerated the beginning treatment may be begun with 1:10, 1:20, or even 1:30, according to the degree of sensibility. If the application causes very violent burning, washing with water and a weaker strength of solution are employed.

GELATIN AND SALT SOLUTION INFUSIONS IN TYPHOID HÆMORRHAGE.

Dr. Witthauer reports four typhoid cases, with severe hæmorrhage from the bowel, treated with subcutaneous injections of sterile gelatin. Three out of four recovered, and in the fourth the hæmorrhage stopped three days before death. The preparation used was given, 50 grams per dose, either daily or every other day till the bleeding stopped and remained absent. In conjunction with this the author used salt solution infusions during the height of the bleeding. He had previously used gelatin by mouth and rectum without success, but he believes the subcutaneous use of gelatin in typhoid to be of much value, and he hopes that further observations on the subject will be instituted. (Boston Medical and Surgery Journal, July 23, 1908.)

GLYCERIN EXTRACT OF LIVER IN ALCOHOLIC CIRRHOSIS.

Dr. Jacques Carles reports a case of cirrhosis of the liver in a woman forty-eight years of age. She suffered from bilious vomiting, had repeated attacks of hæmatemesis, felt very ill, lost flesh, and finally became jaundiced. At this time she was admitted to the hospital, and there it was observed that there were numerous enlarged veins over the abdomen, a large quantity of ascitic fluid was present, and some œdema of the feet. The patient had a thin facial appearance, conjunctivæ were highly icteric, and she was subject to attacks of nightmare and alcoholic delirium. The lower border of the liver could not be felt, but the spleen was somewhat en-

larged. The patient was then put on a milk and vegetable diet, with a little white meat twice weekly. She was also given every day 20 cubic centimeters of glycerin extract of liver. This extract was made by macerating pigs' liver in glycerin. Under this treatment her condition very rapidly improved. The enlarged veins on the abdomen disappeared, ascites rapidly diminished and diuresis became well marked. After six weeks' treatment the patient left the hospital, and three months after she had been admitted her health was very good. This treatment is successful in early cases of cirrhosis, but the results are not favorable in those cases where the greater part of the liver has already been seriously involved. (British Medical Journal, October 3, 1908.)

HIGH FREQUENCY CURRENT IN THE TREATMENT OF ENLARGED PROSTATE.

Dr. Hunter, of Norfolk, Va., brought the Röntgen ray to the foreground as a treatment for enlarged prostate, due to its atrophying powers on glandular tissue. After the patient is placed in the Sim's position a vacuum rectal tube is lubricated and passed into the rectum, placed firmly against the prostate, and held there by the operator, who raises and lowers the handle of the tube holder, moving the electrode over the entire surface of the prostate gland. The tube holder is connected with the resonator by a single wire. The strength of the current is indicated by the spark gap. The patient is not conscious of the least discomfort. Of the twelve patients treated, six were senile hypertrophy, and six were in men under forty-five years of age, and who were suffering from nervous break-down. The humane feature of the treatment is so marked, there is no ether, vomiting, nervous shock, tedious convalescence, or loss of valuable time, and no death. (Journal of the American Medical Association, November 28, 1908.)

HOT AIR IN THE TREATMENT OF ACUTE INFLAMMATIONS.

Dr. Jselin reports encouraging results in the treatment of tendon-sheath phlegmons and suppurating inflammation in general. He uses an ordinary apparatus for using superheated air, applying it twice a day for two or three hours each time, maintaining a temperature of from 90° to 110° C. (194° to 230° F.) within the frame at half its height. Thus arranged, the temperature on the skin averaged 44° or 47° C. (111° or 116° F.), and the acceleration and sweating induced seemed to keep the temperature of the skin within due bounds. The applications of the hot air are made the day after the abscess has been incised and evacuated, and the cavity packed with iodoform gauze. He also states that neglected injuries of the fingers, which would otherwise have necessitated amputation, healed under this hot air treatment without requiring operative measures, and recovery was hastened, also followed by abolition of pain. (Zentralblatt für Chirurgie, Leipzig, October 24.)

HOT IRRIGATIONS IN THE TREATMENT OF VENEREAL ULCERS.

Dr. Zinsser calls attention to the treatment of venereal ulcers by hot irrigations. The treatment consists of irrigation three to five times daily with a stream of potassium permanganate solution 1:4000, as hot as can be borne; temperature ranging from 45° to 50° C. Four to five liters, running from a height of two to three meters in a stream about two millimeters thick, are used at each sitting. The results have been astonish-

ingly good in cases of gangrenous ulcers with necrosis of the surrounding tissues; excessive, foul exudate; lymphangitis; and high fever. After irrigation the ulcer is dried with gauze, sprinkled with iodoform, and tamponaded with iodoform gauze saturated with spirit of camphor and water equal parts. Over this hot linseed poultices are placed and frequently renewed. In gangrenous cases the treatment should be repeated every two or three hours. In about a day the necrotic mass has separated, the bad odor has disappeared, the secretion is much less, the temperature again normal. A few days later granulations can be seen at the edge of the wound, and epithelialization has begun.

Remarkable results have also been observed in phagedenic ulcers, and in buboes, in which cases the invasion of the tissues stops just as soon as the above-mentioned treatment is begun. (Münchener medizinische Wochenschrift Jahrg. 55, nr. 18.)

HOT SOLUTIONS OF BORIC AND SALICYLIC ACID IN THE TREATMENT OF CARBUNCLES.

Dr. Grassman relates the efficacy of the applications of hot solutions of boric and salicylic acid in the treatment of carbuncles. After making a crucial incision he turns back the flaps and cuts into sound tissue; then the flaps are packed underneath with gauze dipped in a hot solution of boric and salicylic acid. A large moist dressing is applied, and the application is repeated in twenty-four hours; or, if the fever has subsided, not until the second day. The surrounding skin is protected with a salve against burning from the hot solution. This treatment is very effectual in preventing hæmorrhage and in promoting the expulsion of the necrotic-tissue. The author has never had occasion to make further incisions or to ligate any of the vessels. (Deutsche medizinische Wochenschrift, Berlin, October 15.)

HYPERÆMIA IN THE TREATMENT OF CHILBLAINS.

Dr. C. Ritter states that not one case of chilblains failed to improve under the application of Bier's method of hyperæmia. The only apparatus required for inducing this artificial hyperæmia is Bier's constricting bandage, by the application of which hyperæmia is produced. The same thing can be brought about by the application of hot air to the part, in the absence of the constricting bandage. The application should extend from six to twelve hours, with a pause of at least two hours daily. (British Medical Journal, in Hospital Assistant, 1908.)

HYPODERMICS OF IRON IN ANÆMIA.

Dr. Leroy F. Peters, of Silver City, New Mexico, advocates the use of iron by means of hypodermic injection in the anæmia of tuberculosis as a method of treatment that gives rapid results. He sums up the treatment by this method of forty-two patients. An effect is obtained rapidly, and the condition disappears after twenty consecutive doses. He uses citrate of iron combined with arsenic and strychnine. (Medical Record, October 10, 1908.)

MERCURY IN TUBERCULOSIS.

Dr. B. L. Wright, Colo., reports the results obtained in the treatment of tuberculosis by mercury. Of the total number of patients under treatment, 85.5 per cent. have been improved, and there have been two cases counted as cures, thus showing that this drug has an antituberculous as well as an antisyphilitic action. Of the remaining 13.5 per cent.

two patients have held their own, six have failed, and one has died. The contrast between the patients who refused the mercury treatment and those who received it, all under the same conditions otherwise, was very marked, only 33 per cent. of those refusing having improved, and this chiefly in the general condition rather than in the pulmonary lesions. Wright believes that the mercury acts as a tonic and as a bactericide in the blood. His method is to give an injection of ⅕ grain of hydrargyrum succinimdum every other day until thirty injections have been given. Then the patient is placed for two weeks on iodide of potash, followed by a week without medication. Then the mercury is resumed with slightly reduced doses for another thirty days, and so on. The drug should never be pushed to the point of salivation, and the doses given above are not absolute, but must be determined by close observation of each individual patient. (Journal of the American Medical Association, November 28.)

METHYLENE-BLUE FOR FISSURED NIPPLES.

Dr. Dresh, of Aix-les-Therermes, has employed a 3-per-cent. solution of methylene-blue as a topical application for the cure and prevention of fissured nipples, after cleaning the ends of the nipples and the infant's mouth with a lukewarm 2-per-cent. solution of bicarbonate of soda. He then swabs the nipples with the solution of methylene-blue. Eight or ten days of treatment are sufficient, and it is necessary to make the application immediately after nursing, when the nipple is at its maximum of erectility. The methylene-blue prevents the constant maceration of the nipple in the saliva and milk by the promotion of keratinization. (Gaz. des Sciences méd. de Bordeaux; Gaz. des Hôpitaux.)

OIL IN THE TREATMENT OF STOMACH AFFECTIONS.

Dr. Rütimeyer concludes from his own experience and study the results of this treatment in 100 cases of stomach affections. In some cases of hypersecretion and hyperacidity, with or without neurasthenia, the secretion was reduced when 30 grams butter or 100 grams warmed oil was taken, fasting in the morning. In another case of threatening post-operative spasm of the pylorus, with extreme dilatation of the stomach, 100 grams of oil poured into the stomach each morning, with lavage of the stomach twice a day, promptly cured the spasm. In one case a merchant of forty-one presented signs of chronic ulcer and spasm of the pylorus, with excessive secretion and intense pains. After being treated by various measures for two years, operation was proposed. Finally, as a last resort, a systematic course of oil was instituted. The patient rinsed out his stomach every morning, and took 100 grams of oil, and in two weeks the pains and spasms vanished. He soon gained weight, and was soon capable of eating any ordinary kind of food. The most striking benefit of the oil treatment is in its influence on the subjective disturbances. (Correspondez-Blatt. für schweizer Aertze, Basle, November 1, 1908.)

OXYGEN IN PUERPERAL INFECTION.

Dr. Reynier reports four cases of severe anærobic puerperal infection in which marked improvement followed the use of a current of oxygen allowed to flow continuously and slowly into the uterus, through a recurrent catheter. In the case of one patient who was much prostrated, six days after her confinement, the temperature being 40° C. (104° F.), and the lacerated perineum and cervix were covered with diphtheroid

false membranes; the uterus was rinsed out with hydrogen dioxide morning and evening, followed by an iodized injection, and this by the continuous oxygen treatment. Soon the temperature dropped, and the patient made a rapid recovery. (Bulletin de L'Académie de Médecine, Paris, October 13, 1908.)

PARAFFIN FOR INCONTINENCE OF URINE.

Drs. Fabre and Trillat report a case where a woman, whose age was not stated, who had been subject for six years to incontinence of urine, apparently of traumatic origin. It became so complete as to prevent her working for a living. There was a posterior colpocele without prolapse of the anterior vaginal wall; the uterus lay a little below the normal level. The urethra was intact, but its sphincter had lost its normal tone. In order to narrow the relaxed urethral canal and to afford a resisting medium upon which the sphincter might act, the author injected solid paraffin into the urethral canal after Gersuny's method. The incontinence disappeared in a few days, and did not return. (Ann. de Gynéc. et d'Obstet., September, 1908.)

PILOCARPINE IN THE LARYNGEAL OBSTRUCTION OF MEASLES.

Dr. A. Montefusco notes the good results obtained by the subcutaneous injection of the nitrate of pilocarpine in doses of 1 milligram, repeated as necessary. The author has treated forty-five cases in the past four years with two deaths—which he attributes to pneumonia. This method of treatment has been found an almost certain cure for the very severe obstructive forms of laryngitis occurring at any time during measles. This laryngitis may be stridulous or pseudo-membranous; in the author's experience the latter is not bacteriologically a diphtheritic laryngitis. (Giorn. Internaz. d. Sci. méd., xxx, 310, Naples, 1908.)

QUININE IN CHOLERA.

The China Medical Missionary Journal for May, 1908, calls attention to the use of quinine in cholera. Very decided success has been obtained by its use by Dr. Ussher in the Philippines. Ninety per cent. of the patients suffering with cholera recovered. It was also used in the treatment during the epidemic of cholera which raged on the Yang-tse, and very good results were secured. The plan of treatment is as follows: Sulphate of quinine in 10-grain doses every hour until the rice-water stools had disappeared and bile was passed into the motions. For suppression of urine, friction of the limbs, hot fomentations, dry cupping over the loins and sweet spirits of nitre were found useful. When evidence of failing circulation intervened, subcutaneous injection of saline solution proved beneficial.

RADIUM TREATMENT OF ANGIOMATA.

The Rev. de méd., 1908, Nos. 6 and 7, discusses the efficacy of radium in angiomata. Radium spontaneously gives forth light, heat and electricity. Besides the emanation, alpha, beta, and gamma rays are produced, and these different rays may be separated by means of an illuminum or lead plate. The treatment of nævi by means of radium is painless, so that it can even be used for children. The radio-active substance is applied upon a metal plate with a varnish, and the surrounding parts of the skin protected by means of lead. The very best results are seen in very vascular, projecting forms and in nævous tuberosus, while the cure of nævus planus is not always

satisfactory. There will be no visible destruction of tissue, and hence no scarring. The method is preferable to electrolysis for this and because it is painless. (Merck's Archives, November, 1908.)

SILVER NITRATE IN INFECTIONS.

Drs. A. Schatzky and N. Grjasnow find that intravenous injections of a 1:1000-silver-nitrate solution form a harmless and very effective method of treating general injection, if used in amounts of 500 cubic centimeters. The method is indicated in all cases of infection without localization, and also where there is localization, but with pronounced symptoms of intoxication. The abscess, etc., should, of course, be treated locally as well. At first there will be a rise of temperature, sometimes with a chill, an increase of pulse and respiration rate, then profuse respiration and fall in temperature. Rarely this action is incomplete or absent altogether. A pronounced reaction is usually followed by permanent low temperature and rapid improvement. The subjective symptoms and general condition are almost always favorably affected. The intravenous injections of silver nitrate induce hæmolytic processes, followed by ferment action. The method must not be regarded as a panacea, yet it sometimes leads to surprising cures. (Klin.-therap. Woch., August 17, 1908; Merck's Archives.)

SPIROSAL FOR RHEUMATISM.

Dr. Otto Lehmann discusses spirosal as an ideal antirheumatic for external use. Spirosal is an oily, colorless fluid, which is miscible with alcohol in every proportion. The chief advantage claimed for it is that it does not cause irritation of the skin. It is best to take equal parts of the drug and alcohol, as the drug can be better rubbed into the skin this way, and an agreeable sensation of warmth will result. After about two hours salicylic acid can be readily detected in the urine. The best results were seen in subacute and chronic rheumatic polyarthritis, and chronic muscular rheumatism, while in the acute forms the internal administration is of more importance. Three rubbings are given daily, and no general or local irritation will follow. (Therap. d. Gegenwart., August 11, 1908.)

SULPHURIC ACID IN CARBUNCLES, BOILS, ETC.

Drs. J. and R. J. Reynolds, of London, Eng., report the beneficial effects of this remedy in the treatment of staphylococcic infection of the skin and subcutaneous tissue. They say that after these cases have been put under treatment it will be noticed that after the first twelve or eighteen hours the affected area becomes distinctly circumscribed, and the lesion ceases to extend, softening of the tissues in the affected area rapidly takes place and pus is discharged, healthy granulations commence to form at the base, and the process of repair goes on uninterruptedly. It is quite unnecessary to cut or to interfere with the part in any way, except, perhaps, to apply some antiseptic dressing, such as carbolized vaselin (1 in 40) on lint. The sulphuric acid should be administered in doses of 20 to 30 minims, well diluted with water, and should be taken regularly every four hours. This treatment should be continued for at least a fortnight after the lesion has disappeared. The treatment is very simple, and in all the cases that they have administered this remedy it has never failed. It also does not disturb the patient's digestion nor cause any incon-

venience in any way. (British Medical Journal, August 15, 1908.)

TREATMENT OF GASTRIC ULCER.

Dr. Borgbjaerg states, in discussing the treatment of gastric ulcer, that since the pain is not due to the sensitiveness of the gastric mucosa, but is due to the spread of the inflammation into the lymphatics or of traction on the parietal peritoneum from the contractions of the stomach, therefore, the first thing to do is to omit such foods from the diet as are liable to promote peristalsis, and to give food in very small quantities. Water should be supplied by the rectum if there be much thirst. The author has had striking results with a 7- to 10-per-cent. suspension of olive oil and bismuth. One of his cases was very much emaciated, due to the loss in weight for a period of six months. The patient presented symptoms of hæmatemesis, followed by sudden pain in the stomach region, hypersecretion and morning retention. Since he showed no improvement under dieting and a course of Carlsbad water, he took 100 gm. (3 ounces) olive oil every morning, and the pains subsided, while he gained nearly 25 pounds in weight, and the suspicion of cancer was dispelled. The combination of olive oil and bismuth generally proves more effectual than either alone. (Ugeskrift for Læger, Copenhagen, August 27, '08.)

VERONAL IN THE INSOMNIA OF MENTAL DISEASES.

Dr. Salluste Roy, physician to the Insane Asylum of Beauport, Quebec, reports that veronal has commended itself in combating insomnia in the insane asylum.

In two cases of acute maniacal excitement in which the other hypnotics had proved unreliable in their action, veronal had produced a calm and refreshing sleep of four to six hours' duration. The same results were obtained in the case of an insane patient who, during periods of excitement, had shown himself refractory to the action of other hypnotics. The doses in these cases varied from 15 to 25 grains, the results consisting in an abatement of the symptoms of excitement, showing that this medicament, besides its hypnotic qualities, has a marked sedative effect upon the cerebrum. It promptly produces a natural sleep in melancholic depression, neurasthenia and hypochondriasis. (Merck's Archives, October, 1908; Le Bull. méd. de Quebec.)

ZINC IONS IN THE TREATMENT OF OPHTHALMIA NEONATORUM.

Dr. H. K. Ramsden describes the recent treatment of a case, claiming that many cases of corneal opacity can be prevented by the method employed. The conjunctiva of the diseased eye was everted and a positive electrode which consisted of some cotton wool saturated in a 2-per-cent. solution of zinc sulphate was applied. The nurse held the negative electrode in the child's hand. The battery employed was an ordinary bichromate battery, which gave twenty volts, and half a milliampére current was passed for three minutes. Twelve hours after the application the inflammation was subsiding, and another application was made. Two days later the case was cured. In the author's experience the case ordinarily treated by silver nitrate or protargol applications (twice a day) would have taken fourteen days, and would have been an anxious one. (British Medical Journal, November 7, 1908.)

Book Reviews

TRANSACTIONS OF THE SIXTH ANNUAL CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS WITH THE UNITED STATES PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE. Washington, D. C., April 27, 1908. Washington Government Printing Office, 1908.

This handsome volume of 79 pages presents the discussion which took place at the sixth annual conference of State and Territorial Health Officers with the United States Public Health and Marine-Hospital Service on April 27, 1908, at 10 o'clock. The discussion considers the various precautions taken with regard to the public health and also the proposed interstate quarantine regulations. Many suggestions and helpful points will be found which will be of service to the reader.

A HAND-BOOK OF SUGGESTIVE THERAPEUTICS, APPLIED HYPNOTISM, PSYCHIC SCIENCE. By Henry S. Munro, M.D., Americus, Georgia. Second Edition. St. Louis: C. V. Mosby Medical Book and Publishing Company, 1908.

The feature of this book is that it deals with the practical application of suggestive therapeutics, applied hypnotism and psychic science. The author states that the human mind is receptive to suggestions and cites cases where suggestion has so influenced cell life, that a hat pin, without previous sterilization, was thrust through a large fold of the cheek of a person without the slightest ill-effects following. Special emphasis is made upon the fact that the physician should make the patient believe that he will get well, in order that he may strengthen the bridge that is to tide him over to recovery. The author brings to the medical profession the facts and the detailed explanation of how to apply suggestion efficaciously both with and without hypnotism as a therapeutic adjunct.

Some of the important chapters are "Hypnotism and Suggestion," "Suggestion Applied Without Hypnotism," Correct Diagnosis a Safeguard Against Blunders," "Philosophy and Religion and their Relation to Health," "Roughing it as a Means of Health," "Personality as a Factor in Therapeutics." This work is one of considerable interest to the medical profession and will be read with profit by all those to whom the subject and its application are comparatively new. The book is written in a style which is simple and attractive and which makes the assimilation of the facts both easy and effective.

TABER'S POCKET ENCYCLOPEDIC MEDICAL DICTIONARY. Edited by Clarence W. Taber, Author of "Taber's Medical Dictionary for Nurses," "The Secret of Sex," Co-Author of "Eales' and Taber's Anatomical and Physiological Chart." Associate Editor, Nicholas Senn, M.D., Ph.D., LL.D., C.M., Professor of Surgery University of Chicago; Professor and Head of the Surgical Department Rush Medical College; Surgeon-in-Chief St. Joseph's Hospital, etc. Chicago, U. S. A.: C. W. Taber, Publisher.

This little book is intended, as is stated in the preface, "to fill a demand not supplied by any other pocket medical dictionary." Besides grouping the subject of special interest in separate vocabularies for the purpose of facilitating access to them, the author has also inserted a cross index system by which a word may be found whether it is known by the consultant or not. The information is simple and explicit as could be given in the space occupied. It will render valuable service to the consultant and its flexible covers will preserve it during its frequent use as a guide. The work as a whole is very commendable. It covers the necessary ground and no more, being free from vague and obsolete terms or words with no medical significance.

GONORRHŒA IN WOMEN. By Palmer Findley, M.D., Professor of Gynecology in the College of Medicine of the University of Nebraska, Omaha; Gynecologist to the Clarkson Memorial Hospital and Wise Memorial Hospital; Fellow of the American Gynecological Society. St. Louis, Mo.: C. V. Mosby Medical Book and Publishing Company, 1908.

This book is devoted exclusively to the consideration of gonorrhœa in women and embodies the views of the best workers in this field. The first section gives an excellent account of the "Historical Sketch," then comes "Etiology," "Pathogenesis," "Pathology," "Course of Gonorrhœal Infection," "Diagnosis," "Frequency of Gonorrhœa in Women," "Sociology," "Treatment," "Systemic Gonorrhœal Infections," and "Literature."

In the chapter devoted to the treatment, the author considers in detail those remedies which have proven of value, and individual preferences are brought into prominence. The subject matter is printed in large type and on good paper; important points are emphasized by bold-faced type. On the whole, the book admirably fills the place for which it was intended.

THIRTY-FIFTH ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH OF THE STATE OF MICHIGAN FOR THE FISCAL YEAR ENDING JUNE 30, 1907. By Authority. Lansing, Michigan: Wynkoop, Hallenbeck, Crawford Company, State Printers, 1908.

This volume gives a report of all the diseases within the jurisdiction of the State of Michigan and describes the dangers to health which threaten the life of the people in the State. Also the various means for the elimination of these diseases are pointed out. The numerous tables scattered throughout this report give valuable information concerning the health of the State.

ARTERIOSCLEROSIS: ETIOLOGY, PATHOLOGY, DIAGNOSIS, PROGNOSIS, PROPHYLAXIS, AND TREATMENT. By Louis M. Warfield, A.B., M.D., Instructor in Medicine, Washington University Medical Department; Physician to the Prostestant Hospital; Adjunct Attending Physician to the Martha Parsons Hospital for Children, St. Louis, Mo., etc. With an introduction by W. S. Thayer, M.D., Professor of Clinical Medicine, Johns Hopkins University. Eight Original Illustrations. St. Louis: C. V. Mosby Medical Book and Publishing Company, 1908.

Dr. Warfield has brought this work up to such a standard as to keep it abreast of the most recent advances made in arteriosclerosis. He lays stress upon the earliest possible diagnosis and points out how this diagnosis is to be arrived at. The treatment of this disease is unusually full and practical and is the result of the author's many years of experience in the treatment of this disease. A feature of especial value is the chapter devoted to "Prophylaxis" and to "Practical Suggestions." Nothing has been omitted which would add to the completion of the subject. Indeed, it is the most valuable work on arteriosclerosis yet published and is therefore unhesitatingly recommended to the profession.

SAUNDERS' BOOKS. A Descriptive Catalogue of Medical and Surgical Works. Illustrated Revised, December, 1908. W. B. Saunders Company, 925 Walnut Street, Philadelphia; London, 9 Henrietta Street, Covent Garden; Australian Agency, 430 Bourke Street, Melbourne.

This catalogue is devoted exclusively to the description of the various medical and surgical works which have very recently come before the medical profession. It gives the peruser a brief and concise description of the various books on the different subjects and also shows some of the illustrations to be found in these books.

In order to facilitate the access to the description of a certain book treating a certain subject, there is a classified index at the end of the catalogue which indicates all the most recent volumes written on a definite subject.

This catalogue will undoubtedly prove very helpful to the physician, by keeping him posted on the latest works, and in this manner enable him to increase his knowledge on any subject. This catalogue can be secured by addressing W. B. Saunders Company, 925 Walnut Street, Philadelphia, Pa.

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Original Articles

Department in charge of J. MADISON TAYLOR, A.M., M.D.

THE TREATMENT OF TYPHOID FEVER WITH SOLUTION OF CALCIUM CREOSOTE.

Analysis of 118 Cases—Practical Remarks on the Disease.[1]

BY LOUIS KOLIPINSKI, M.D.,
WASHINGTON, D. C.

Non eadem ratio est, sentire et demere morbos,
Sensus inest cunctis, tollitur arte malum.
Ovid, ex Ponto, iii, 9.

IN the days when it was thought that wood-creosote, given in the largest possible doses, could cure pulmonary tuberculosis, the preparation was conceived to which the name of "Solution of Calcium Creosote" has been given. The acridity of the raw material was overcome and creosote thus combined can be taken in doses of any amount without producing poisonous results. It has, moreover, a stimulating and mildly exhilarating action which is often agreeable to the sick. It was found to have the medicinal properties ascribed to its original form and intrinsic powers of its own, so that all the effects of creosote could be obtained from it. Its capabilities and limitations could be accurately defined and its usefulness in various diseases determined. Herein, however, its action in typhoid fever is separately reviewed. The description of its properties in other diseases is referred to some future time.

[1] The treatises on typhoid fever by Curschmann, in Nothnagel's "Encyclopedia of Practical Medicine," edited by Wm. Osler, and of McCrae in "Modern Medicine," edited by the same, were used as guides to the text of this essay.

Preparation of solution of calcium creosote.—After the method of the British Pharmacopœia, take a sufficiency of lime, freshly prepared, and convert it into calcium hydrate by the addition of water, two parts to one. Cover the vessel and allow its contents to cool. Pass the product through an iron wire sieve by gentle agitation. Place the sifted calcium hydrate in an appropriate percolator of glass, of porcelain or of earthenware. One made off hand with a large flower pot is convenient. Add creosote with constant stirring. It is best to use an excess of slacked lime for continuous production and the original quantities should be three pounds of calcium hydrate to one of creosote. The gross molecular proportions in which these bodies combine being 64 to 124. The smooth, white substance of the lime becomes gray and granular, and heat is evolved. When the reaction is completed add water in sufficient quantity to produce a thin magma. Allow it to stand a day and then proceed to obtain the solution by percolation. The specific gravity of the liquid for use should be 1.010 to 1.012. Where the first collection is below this, return and repercolate. A pound of creosote yields about twenty pints of the preparation. When this has been collected more creosote should be added to the lime and the process may be continued for months. Solution of calcium creosote has a yellow color turning red on keeping. It should be preserved in well-corked bottles. The contact of air produces in it a heavy turbidity and the deposition of calcium carbonate.

It has a strong alkaline reaction. Half a fluid ounce represents ten to twelve minims of creosote. Its taste is sharp and later peppery; its odor faintly of creosote or smoked meat. It has no irritating or caustic action and can be swallowed, undiluted.

In the treatment of typhoid fever with calcium creosote certain principles must be known and followed for a rational and successful result. The select case is where the diagnosis is made early and correctly, and the daily details of treatment are carried out either with sufficient experience or sufficient understanding. The many occurrences and accidents possible must be known before, and anticipated or actively opposed. Everything done must be with the knowledge acquired from former cases. In a fresh one the prime principle is to smother or abort the disease; where this attempt fails from complication, recrudescence or relapse, the treatment continues as before. When an early cure is not obtained a safe recovery in the shortest time is sought.

The calcium creosote must be given in the maximum practical doses. These are for a child of six or seven years, one teaspoonful every two hours. For an adult, two to four teaspoonfuls in the same length of time. The solution is given day and night for the greater part of the first week until falling temperature, normal pulse, normal faculties allow the discontinuance of the night doses. The time then for natural rest and sleep. It is advantageous to offer the liquid well diluted, in half a tumblerful of water. It is never refused by the patient and most of them declare that it refreshes and revives them, clears and composes the mind.

Nausea and occasionally vomiting are apt to occur either from the creosote crowded on, or from milk; it is not always possible to determine at

once which is the exciting cause. Then the raw milk may be replaced by a boiled diluted milk, or the calcium creosote may be omitted for a few hours or the dose of it reduced. Such symptoms and also diarrhœa are transient. At the end of seven to ten days the medicine is continued in three-hour intervals. When the temperature becomes normal or sub-normal, four doses a day are given until the patient returns to an ordinary varied diet.

This is the sole treatment and it must be accompanied by certain unvarying essentials of nursing, namely, the patient's rest and frame of mind, the functions of his body and the administering of daily estimated food.

The typhoid fever subject should not be allowed to leave his bed until in convalescence he is far enough recovered to partake of solid food. He should not be raised up or propped up with pillows or a head rest. The greater part of the time should be passed in the supine posture. Each day, however, he may vary the position, resting on either side for some hours, but not turning his body or changing his position at short intervals. It follows that the bed pan must always be used to receive the dejecta. The majority submit to this necessity and those who at first oppose its use can invariably be induced to yield by the irrefutable argument that they are well able to do what anybody else may have to learn to do.

The patient's mind must be kept free from care and all thoughts of matters of daily life. Unnecessary conversation, reading and the admission of visitors must be interdicted. The patient must be made to feel the moral tone and decision of the treatment and the nursing. To inform him of the name of his disease is always harmful and by this knowledge his condition can never be improved. Much is the physician's labor lightened if he alone conducts the council of war. Death, through fear of the disease is possible in typhoid and has occurred although it may not appear in the many descriptive monographs.

The proper food is milk. A patient cannot be cured without it. Drinking water should be given freely and by some is taken in large quantities and with much benefit. To continue it long and liberally is not necessary, as the sick often decline to continue such libations. It is better, therefore, to determine the amount of milk the patient requires to sustain himself, and to persevere therewith until recovery. The quantity needed by an adult is from six to eight pints per diem. The proper amount is determined by the state of the pulse.

When the pulse is slow and full the quantity given is sufficient; when the pulse is rapid, dicrotic and weak, it must be increased. Milk given regularly through the night for the first 7 to 14 days of treatment is markedly beneficial. In some subjects, notably Hebrews, raw milk acts as a brisk purgative, causing oppression and flatulence. Occasionally such an accident may occur in any case, in those who before were taking it well. With this diarrhœa may also occur vomiting and intestinal pain, more or less severe.

These are instances of milk containing deleterious impurities, whose nature we cannot always determine, except by such effect. This is more often an accident of the Winter months. Impurities may have collected in the milk supplied, having been longer kept or stored. When the milk, therefore, dis-

agrees with the patient it is suspended or discontinued. In its place is given one or the other of these milk preparations:—

Prepare rice water by boiling a teaspoonful of rice flour in two or three pints of water for about fifteen minutes; add an equal quantity of well-boiled milk; or add one teaspoonful of barley meal to one pint of water, boil five minutes and mix with the same quantity of boiled milk. Either of these foods invariably agrees and is well digested. Beyond these foods no other is necessary or of benefit.

The diet of convalescence should be varied yet harmless. It is not difficult to satisfy the desire of hunger without injury. When the afebrile state has persisted four days the following can be written out for the patient's approval:—

1st day. Milk, oyster broth, schmierkaese or curds.

2d day. The same, also chicken, beef or mutton broth, clear.

3d day. As the second; add rice or barley to the meat broth and strain.

4th day. The same as the third; do not strain out the meat broths.

5th day. The same as the fourth; a cup of cocoa.

6th day. As the fifth; a couple of poached or scrambled eggs.

7th day. The daily fare of a person in health, but food at three- or four-hour intervals.

The functional discharge of the bowels must be regulated. The early diarrhœa rights itself as the treatment progresses. There is usually a marked tendency to constipation. The intestines must be subjected to daily evacuations. Constipation is not a good state and results in intestinal pain, rise of fever, meteorism, fæcal impaction, hæmorrhoids and retention of urine.

To move the bowels purgatives are not safe. Their effect is often beyond our control. They tend to derange the stomach. Daily enemata of water, soap suds, salt solution or sweet oil, are best. The bowels should be moved copiously once a day, which may be accomplished with one or two injections. The inconveniences to the patient, just mentioned are usually avoided herein and the antiseptic action of the calcium creosote is favored.

The preceding is a description of the general treatment, and what follows the results which are usually obtained. Solution of calcium creosote subdues the fever by lysis either within ten days or in two or three weeks. The week of rising temperature, the two weeks of steady elevation, the week of decline—the typical fever cure of Wunderlich is not found. The highest fever is most common at the onset. However high the temperature rises it does not appear to harm the economy or imperil the favorable outcome. Toxæmia, considered apart from the febrile elevation is not apparent in that the subject but rarely passes into a delirium, coma or prostration with tremor. There is nothing like a mental disturbance in which it is not possible to converse with the sick; where he forgets his surroundings, or attempts to struggle or escape. The typhoid state in typhoid fever no longer seems an appropriate term.

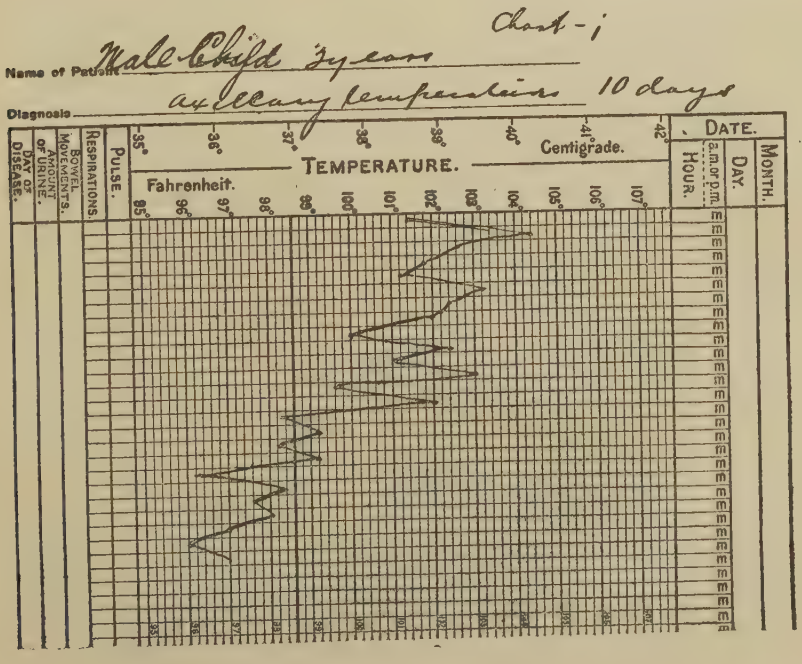
The pulse remains below 100 beats a minute, not alone in the first week in which it is to be found so in cases however treated, but it does not increase in number of beats in the second, third or fourth week. A pulse that in the

beginning of treatment may be 120, in a few days may come down to ninety beats. There are no symptoms of heart weakness, none of typhoid myocarditis. The lips and teeth remain more or less natural, the tongue with an even white coating is moist, it does not become dry, does not enlarge or shrink.

The intestinal mucosa and contents are disinfected if one may judge from the character of the stools; the putrid odor, the pea-soup color and consistence do not appear or are speedily corrected. The stool grows odorless, firmer, is white or yellow in color, later it is scybalous. The urine is of low specific gravity, pale, clear unless turbid with typhoid bacilli. It does not contain albumin. This diuretic urine is found, however, with other treatments where much liquid is administered.

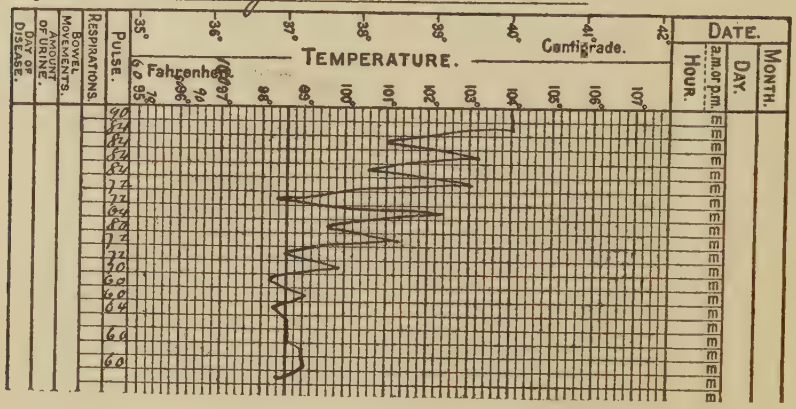
Typhoid fever may be viewed clinically from the standpoint of a treatment like this as presenting two forms of the disease. The pure or aseptic fever in which the symptoms of toxæmia do not appear or any of its graver and dangerous phases. This form pursues a mild and easy course with recovery in one to three weeks. The septic or toxæmic form which lasts four weeks or more, in which the typhoid state develops, in which dangerous complications arise and which always imperilling life, gives a certain number to death.

In theory and if these statistics are any proof, in fact, a remedy with the properties of calcium creosote has as its special purpose and action, the abrogation or prevention of the septic secondary infection and restores the patient to health by preventing him from harboring secret enemies or by destroying those foes which he himself may engender. The accompanying fever charts are illustrative of cases typical of this treatment:—



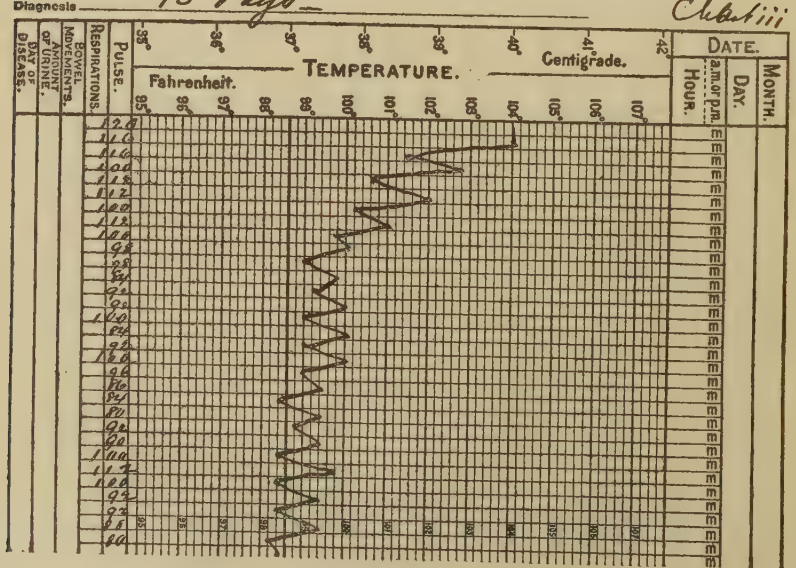
Name of Patient White Youth 15 years Chart ii.

Diagnosis 10 Days—



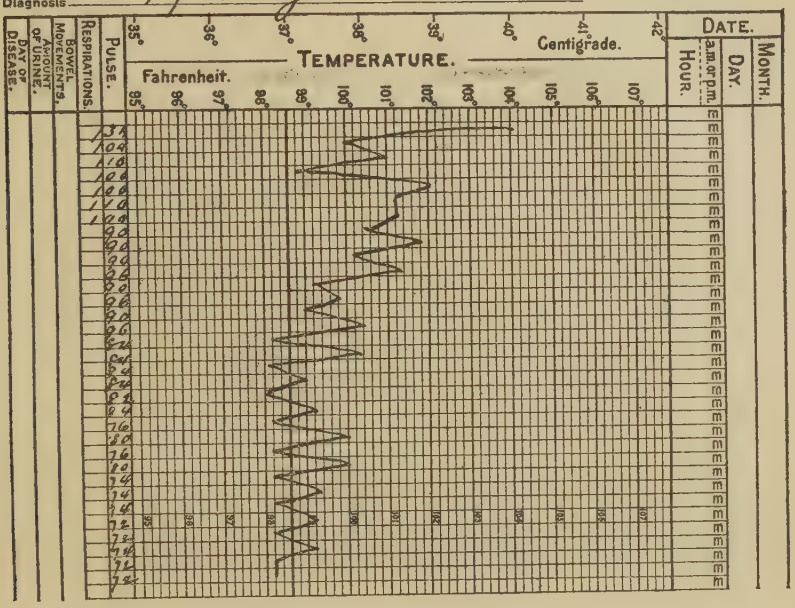
Name of Patient White Female - Married 2 days ago

Diagnosis 15 days— Chart iii



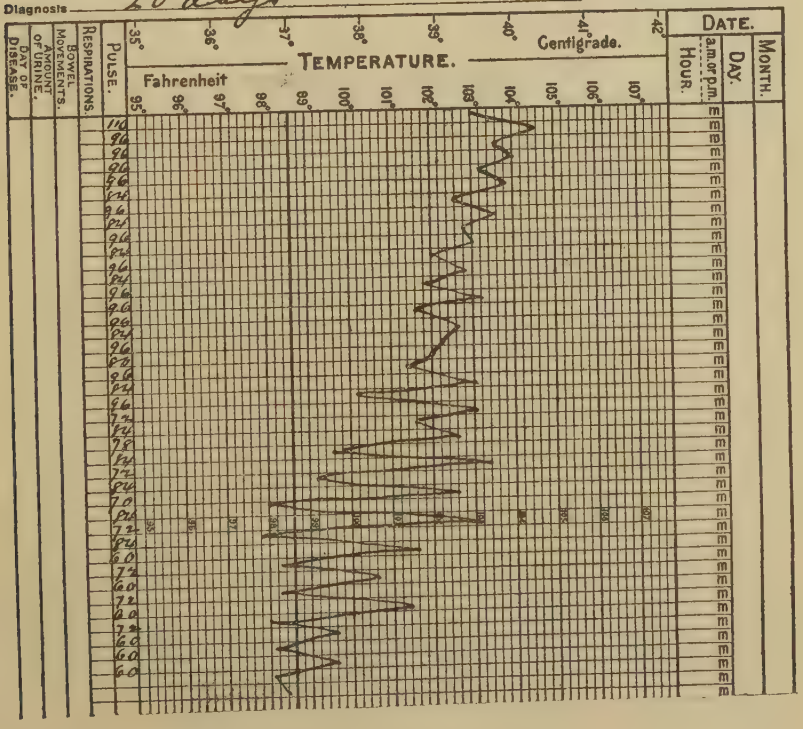
Name of Patient White Female 34 years

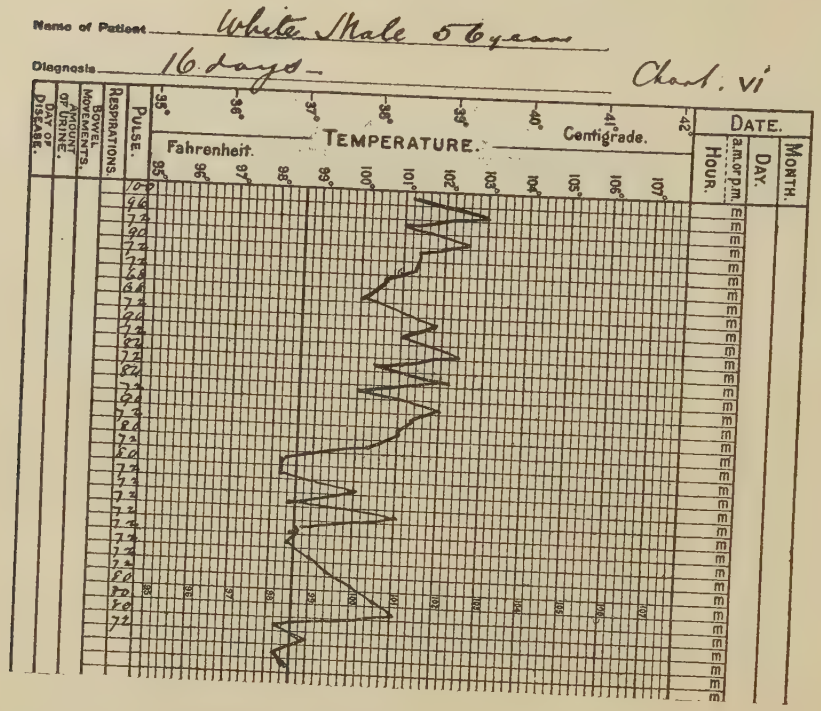
Diagnosis 17 Days Chart IV

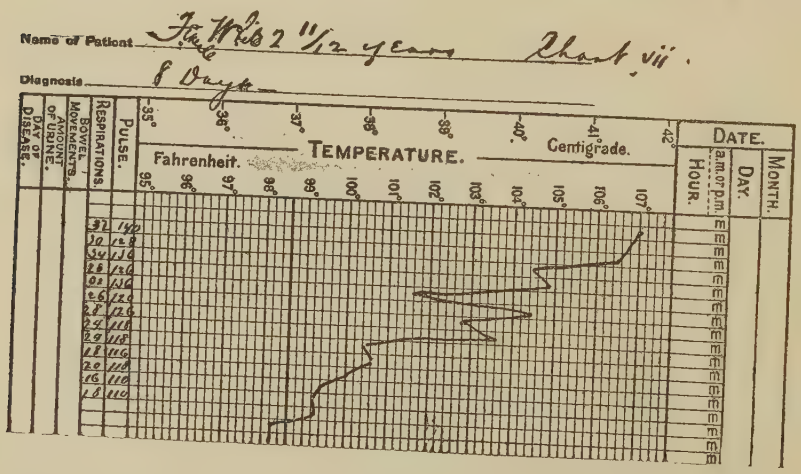


Name of Patient White Male 43 years

Diagnosis 20 days Chart V -







1st. Male child ..... 3 years: 10 days duration
2d. A youth of ..... 15 years: 10 days duration
3d. Married female ..... 26 years: 15 days duration
4th. Married female ..... 34 years: 17 days duration
5th. A male ..... 43 years: 20 days duration
6th. A male ..... 56 years: 16 days duration

In the sixth chart the final excursion of fever was due to the patient's agitation on the sudden desertion of his nurse.

7th. Female child ..... $2\frac{11}{12}$ years: 8 days duration

Very sudden onset; the highest fever temperature, 107° F., general tremor but no convulsion or delirium. Urine abundant with typhoid bacilli, Ehrlich's diazo-reaction. Twenty drops of calcium creosote every two hours, night and day.

Comparative Analysis of Cases and of Symptoms Observed.

The number of consecutive cases treated by this method was 118. Of these 43 were children; 26 adolescent; 48 adults. There were 58 males, 60 females.

Extremities of age.—The youngest patients were two years old, two cases; the oldest patient a man of sixty-five.

Comparing the frequency of typhoid infection by months the following appears:—

1903.—	2	0	4	2	0	0	3	5	4	6	1	0	— 27
1904.—	0	0	4	2	2	0	2	1	6	7	1	1	— 26
1905.—	2	1	0	3	1	2	1	4	2	4	1	1	— 22
1906.—	1	3	0	0	1	0	1	4	2	4	2	0	— 18
1907.—	5	1	1	0	0	0	5	7	1	2	3	0	— 25
	10	5	9	7	4	2	12	21	15	23	8	2	118
	Jan.	Feb.	Mch.	Apl.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	

Second attack.—There was no genuine case of a second attack encountered. In one instance the patient declared that he had had the fever four years before, which was not confirmed by the testimony of his medical attendant.

Multiple cases in one family.—Two instances in this collection. The dates of the onset of the disease were:—

First family.—	Girl	10 years,	Oct. 12, 1906
	Girl	7 years,	Oct. 12, 1906
	Mother		Oct. 17, 1906
Second family.—	Father		Aug. 30, 1904
	Son	8 years,	Sept. 23, 1904
	Daughter	13 years,	Sept. 23, 1904
	Son	6 years,	Sept. 25, 1904
	Son	3 years,	Dec. 10, 1904

Contact infection of attendants was not observed. As almost every patient had a separate nurse, the exposure to infection was enormously multiplied by the number of persons, if susceptible.

Incubation period was not determinable. In many the invasion was sudden. So sudden that the narrative of how the patient grew sick and what brought it on was to be completely discarded and ignored. One, for example, described how he contracted a cold and muscular rheumatism by riding a bicycle in his shirt sleeves, whilst his body was perspiring from the work he had left.

The fever.—The schematic division of fever of Wunderlich was not found in a single case. In most there is a tendency for the highest temperature to decline in the first week's end whether it continues to do so or rises again.

Height of fever.—The height of elevation of the temperature considered alone, is of no moment. A pure uncomplicated febrile rise does not endanger the chances of recovery. In the 118 cases there were 42 with a temperature of 104° F. and over; 11 with 105° F. and more.

Average duration of the fever.—The average duration of the cases collected was for the child, 14.75 days; for the adolescent, 15.3 days; for the adult, 16.25 days. Excluding all abortive cases and all cured within ten days by calcium creosote, the average duration for the remaining was in the child, 18.4 days; in the adolescent, 18 days; in the adult, 20.4 days.

Termination of fever.—The recession by lysis is the rule; by crisis was found 16 times.

Inverted type of fever.—Partial or complete examples two times.

Intermittent form.—13 cases: 3 adult females; 3 adult males; 5 females, 7 to 18 years of age; 2 males of 10 to 14 years.

Relapses occurred in seven patients. They were, contrary to the well-established opinion, as long or longer than the primary fever.

A girl of 15 years, 12-day fever; relapse 12 days.

A girl of 17 years, 7-day fever; relapse 11 days.

Single woman of 27 years, 21-day fever, relapse 24 days.

A married woman of 26 years, 11-day fever; relapse 22 days.

A widow of 37 years, 12-day fever; relapse 13 days.

A lad of 14 years, 16-day fever; relapse 14 days.

Chills of pronounced degree were present in four instances. In one at the inception, in three towards defervescence. They were of the periodic quotidian variety and all yielded to quinine. In the fourth case, a prolonged relapse was followed after a week by a malarial intermittent fever, proven by immediate cure with quinine.

Lesions of the skin.—A diffused roseola simulating German measles, present in one case. The rose spot evolution was not watched for or recorded.

Furunculosis.—One case; none of herpes, erythema, urticaria or ulcers.

There was one *bed-sore.* A most extensive sacral decubitus following profuse intestinal hæmorrhage. Bed-sores also appeared on the heels, the calves of the legs and the extremities of the great toes. The sacrogluteal ulcer was not quite healed a year after recovery.

Sweating is more often found with the calcium creosote treatment than without. This both in the first week and salutory night-sweats with the decline of fever. Sudamina (miliaria crystallina) and lichen tropicus (prickly heat) are rather frequent accompaniments.

Falling of the hair is rare, never extensive. After-treatment by cutting the hair short or by shaving the scalp is not recommended. The defluvium is so scant that it does not attract the convalescent's attention.

(*To be concluded in our March issue.*)

OCULAR TRAUMATISM, A CAUSE OF THE NEUROSES.[1]

By HOWARD F. HANSELL, M.D.,
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PHILADELPHIA.

By what peculiar mentality or flight of imagination an insignificant injury to the eye may be the forerunner of serious disturbance of the nervous system has thus far baffled the skill of the neurologist and ophthalmologist to determine. Equally unintelligible is the remarkable and well-known fact that serious ocular injury, by which vision is permanently compromised or lost, is seldom ascribed as the cause of functional disorders of the nervous system. In arriving at a conclusion which shall as nearly as possible explain this curious freak in the science of etiology, conditions outside of the accident or its consequences must be considered, such as the circumstances of the injury, the environment of the injured and the responsibility for the injury. These are important determining factors in the development of a neurosis. Should the injury be purely accidental, a so-called dispensation of Providence, slight or grave, interest is centered in the eye only. Should, however, the accident be attributed to inefficiency of a servant of a corporation or imperfections in the machinery of a corporation and without contributory negligence on the part of the victim, the interest becomes diffused and invades the ranks of the medical and legal professions, and the judiciary, in its far-reaching consequences. In other words, what effect has a possible or probable claim for damages in the exaggeration of the extent of the injury to the eye and in the production of reflex disorders?

My purpose in choosing this subject and presenting it for your consideration is two-fold: First, to remind you that ocular traumatisms like traumatisms to other parts of the body may be the cause of hysteria, and second, to discuss the value of medical expert testimony in trials for damages resulting from ocular injuries and their effects on the nervous system.

Amaurosis, partial or complete, results from direct injuries to the eye. Enumeration of the variety of injuries and their result upon the eye would mean naming all possible accidents and all possible ocular conditions—a waste of time. Amaurosis may also be caused by indirect injuries, for example to the skull and to the orbit, and may be monocular or binocular. One or two examples, selected from the many reported in the literature, may be cited.[2] A man of 45 was thrown by the breaking of a machine, violently to the floor, striking his head on the hard surface. He bled from the nose and mouth and was unconscious for ten hours. Upon awakening the left eye was perfectly blind and the right side of the body was paralyzed. The diagnosis was fracture of the base of the skull and of the spinal column. The pupil was dilated, reacting only consensually, the optic nerve became atrophic and the blindness

1 Read before the College of Physicians, Pittsburg, Pa., April, 1908.

2 Leber and Deutschman: Arch. f. Ophthal., Bd. XXVII, S. 281.

permanent. The right eye remained healthy. Capron[3] speaks of a man who received a blow with a beer glass in the neighborhood of the left eye. Vision in the left eye which had been perfect up to that time sank to light perception. Excepting the external wound nothing abnormal could be discovered beyond a whitening of the inner two-thirds of the disk. As an example of binocular partial amaurosis, following injury to the bones of the skull, I may refer to the following case from my own practice. A coachman was thrown by collision with an electric car from his box on a carriage, struck his head against the street pavement and was picked up unconscious. After recovery from the immediate effect of the accident, he complained of partial loss of vision. For the next two or three years vision slowly declined until at the time of my examination it equalled $\frac{5}{200}$, excentrically. He had a large negative complete central scotoma, and atrophy of the optic nerves. This case is similar to many others that have been reported in which blindness was due to pressure upon the optic nerves or chiasm from fracture of the sphenoid bone or of the apices of the orbits.

Hysterical blindness, without organic changes in the eye, is not uncommon after injury. It may be monocular or binocular. The victims of the affection may be divided, as de Schweinitz has said, into 3 classes: those who simulate the blindness, those who see unconsciously but are not capable of conscious vision, and those who really are transiently blind—an apt classification. The blindness is only a symptom of hysteria and is associated with other stigmata equally well pronounced, such as complete loss of sensibility over large areas of skin.

Hysteria, which may be taken as the type of the neuroses induced by traumatism, is not well understood, particularly in its pathology. It has a comprehensive symptomatology and well defined stigmata. Variation in the symptoms is common and is often consistent with the personal characteristics of the patient. It is admitted that non-traumatic hysteria, or hysteria arising from causes within the body, is more common among women than among men—the proportion is usually given as 5 to 1—but no statistics have been compiled so far as I am aware, estimating the relative frequency among men and women of traumatic hysteria. It may be readily understood that in consequence of their daily occupations males furnish the greater contingent. Moumalle[4] says concerning the relation of the male to the female, among 27 cases of injury to the optic nerve, 24 were males and 3 were females. Moreover, the development of the affection depends more upon the responsibility for the injury than upon sex, or upon the character of the individual or the nature of the accident.

The presence of traumatic hysteria seems to point to the existence or creation of a new and additional mental factor that need not be reckoned with in the other forms. For example, an individual who had never exhibited any of the stigmata of hysteria receives an injury. Thereafter for some days, weeks or months his thoughts and actions are governed by an impulse or

[3] Arch. of Ophthal., Vol. XVIII, p. 407.

[4] Für Casuistik der Sehnervenverletzungen, Giessen, 1901.

conception entirely foreign to his former character. Possibly an organic lesion such as a minute hæmorrhage or rupture of the brain tissue at the psychical center may be responsible for the state of the mind that leads to the enormous development of the ego, the exaggeration of slight maladies or positive misconceptions and false deductions. The mental faculties are as acute or even more acute than before, but the moral faculties have become distorted. Traumatisms that lead to hysteria cause apparently a greater derangement in the moral than in the mental or physical powers. This does not positively exclude organic changes in the brain, for it is known that moral obliquity may have a definite cerebral cause, but renders such changes extremely improbable. As Burr says,[5] "In trauma it is not the physical injury nor the fractured skull or leg which causes the hysteria, but the profound mental disturbance." Moreover the suddenness of the recovery after the award of damages favors a functional rather than an organic disturbance.

The physical manifestations of traumatic and idiopathic hysteria are practically identical or, as de Schweinitz says (Posey and Spiller): "In the eyes the manifestations of hysteria which have been described as hysterotraumatic are often pronounced, more so frequently than those which are associated with hysteria of other origin, but they are not pathognomonic." Again, as stated above, the development of the affection depends more upon the responsibility for the accident than upon sex or the character of the individual or the nature of the injury. Heredity or the acquired tendency to the neuroses, the state of mind and health previous to the injury, may have prepared the individual for the appearance of a neurosis consequent upon an injury; but it is manifest that no unusual symptoms would have been observed had no injury occurred, and the tendency would have passed unnoticed. The effect of ocular traumatism upon the nervous system is shown in the mental disturbance following operations in which the ball is opened. We are all familiar with the mild delirium subsequent to cataract operation. Several causes contribute to this condition, such as the shock of the operation and the dread of it, the consignment of the patient to the dark by reason of the binocular bandage and the loneliness and home-sickness induced by the confinement and the darkness. A man of 50 was iridectomized. Both eyes were bandaged and he was placed in bed in a quiet room. In 24 hours he was wildly delirious and required a straight jacket and the constant presence of attendants. He was removed to his home and in an hour he came to his senses. No amount of reasoning or explanation seems to suffice to quiet the nervousness. The thought of the restoration of vision and the resumption of occupation is submerged under the intense mental excitement following the surgical procedure. In some persons the same mental incapacity, lack of judgment and delusions succeed trivial ocular injuries, and these persons, ordinarily intelligent, are beyond the reach of argument. Some authors believe that such symptoms are found only in weak and nervous people or those who are mentally deficient, although in a latent form and hitherto unknown to physician or patient. In some, pain is

[5] Int. Clinics, Vol. IV, Sixth Series.

the cause of the nervous symptoms, in others the accident itself, and in others we find no explanation. A striking instance of the first is reported by Barkan.[6] A piece of glass from an exploding bottle struck a healthy man in the eye. While the glass was being removed he fell unconscious and vomited. After the return of consciousness he was blind in both eyes and remained so for a week. Then light perception returned to be lost in another week. The pupils were moderately dilated with uncertain reactions. There was restoration of light perception in the central part of the field which gradually became larger until full acuity of vision was regained. In other cases the mental condition courteously known as hysteria is a purely voluntary one, and is initiated and prolonged in the hope of obtaining pecuniary award, the severity of the symptoms and their continuance being proportionate to the gullibility and wealth of the responsible party. Burr[7] aptly writes: "Much doubt has been cast on the causative influence of trauma because of the large number of cases which come before the Courts claiming damages, there being a well known type of conscience that considers getting money from corporations as highly praiseworthy." The mental state is fostered by unscrupulous lawyers and physicians who for purposes of their own encourage the victim to become a fraud and stimulate him to remain one. I do not refer to the acts of conscientious men, patients, lawyers or doctors, of which there are a plenty, who testify in accordance with their convictions, but to those who deliberately twist their knowledge of law and medicine for their own gain. The most common classes of law suits are those in which the experts on neither side consciously violate truth and ethics, but state their opinions on insufficient knowledge and experience—opinions that are exactly opposed. The more prominent the medical witnesses the greater the uncertainty of judge and jurors as to the justice in the case. It is a matter of daily record with which you are as familiar as I am, that medical experts, equally wise, equally prominent, equally experienced, equally conscientious, are ranged against each other and take opposite sides in the disputation. It has, perhaps, not occurred to you that these men become interested for one or the other side by accident rather than by design, according to priority in selection by the contesting parties. We, each of us, have a judicial right to express our opinion only when that opinion is the result of learning and experience. Personally one may think as he chooses, but when his opinion becomes public property and carries weight either pecuniarily or punatorially and is relied upon to enforce justice and right, it must be the result of intelligent and honest conviction. It must not be accidental nor expressed for ulterior or selfish motives. We, as members of an honorable profession, repudiate with indignation the assertion that we can be bought, and yet by our practices we subject ourselves to criticism. My own experience in the Court room has been limited, and it has not been altogether agreeable, for I have found opposed to me men whom I respect and admire and who I know are not incited by unworthy motives. Their opinions and mine

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[6] Trans. German Phys., San Francisco, 25th Ann.

[7] *Loc. cit.*

were in utter conflict. Their position was unintelligible to me as possibly mine was to them. Of course, they may have been right and I may have been wrong. The verdict is no criterion. That depends rather on the wealth of the corporation, the poverty of the claimant and the cleverness of the attorneys in tragically depicting the contrast, rather than upon the medical evidence. A man was struck in the right eye by a fine fragment of glass from an exploding electric lamp. Three weeks after the accident no trace of injury to the eye could be detected—admitted by medical experts of both sides. The man claimed he was blind in the eye that had been struck. There was absolutely no evidence of any deterioration of sight. On the contrary it was proven he had excellent binocular vision. He subsequently had dysentery, anal fistula and appendicitis which together made him the wreck of a man. The medical experts testified under oath that they believed that these abdominal diseases were the result of ocular infection—a perfectly preposterous position when it was clearly shown that the eye had not been infected. Had they claimed that the man suffered from hysterical amaurosis and the subsequent disasters were indirectly due to hysteria and the hysteria due to the accident, the experts for the defence would have had a more difficult task, for who can say what hysteria is or what may be its complications. Such medical testimony might have been expected from shysters and quacks, but not from reputable men. In another case a man was riding in a trolley car and, owing to a collision, a piece of glass was lodged in the conjunctival sac. Several weeks later when I first saw him he stated he was blind in the injured eye and his oculist attributed the blindness to the retention within the eye of a piece of glass. The eyeball had not been injured and contained no glass or other foreign material. It was apparently as sound as the other one and responded to all the tests for vision. He brought suit for damages and had retained the services of his oculist, who was willing to go into Court and testify that the eye was blind and that it contained a piece of glass. To one who could use an ophthalmoscope or interpret a radiograph his willingness could mean only one of two things,—either he was ignorant of ocular diseases or he was a fraud. Cases such as these are altogether too common. Medical testimony has come to mean nothing.

As a remedy, I would advocate the exclusion of medical experts, selected by interested parties, from all cases. Their evidence is no guide for the jury. The evidence of one expert is balanced by that of another. The victim is injured and he is not injured; he is sane, he is insane; he is responsible, he is irresponsible; he is a fraud, he is an honest man.

If the State or the Court would appoint competent medical witnesses at a salary large enough to preclude the chance of modification of views by pecuniary, economic or social considerations, and confine the medical testimony to the evidence of these men, the difficulties might be overcome and the ends of justice served.

A CASE OF TUBERCULOSIS OF THE UTERUS, CERVIX AND VAGINA, WITH PYOMETRA.[1]

By EDWARD A. SCHUMANN, M.D.,
Out-Patient Surgeon and Pathologist, Gynecean Hospital, Philadelphia.

While tuberculosis of the female genital tract taken as a whole is a fairly common condition there are certain manifestations of the disease which are of great infrequency and of marked interest both from the clinical and from the pathological viewpoint.

The case which I here report is one of tuberculosis of the vagina, cervix uteri, and of the uterine parenchyma, the tubes, ovaries and peritoneum being entirely unaffected.

In genital tuberculosis of the various points of localization, that of the tubes is by far the most common. Next to the tubes, the endometrium is most frequently attacked, though the uterine muscle is rarely invaded. No cases are recorded where the infection has penetrated from the uterine mucosa to the peritoneum or vice versa.

After the endometrium, the ovaries, cervix, and vagina follow in order of susceptibility, with the vulva as one of the rarest seats of tuberculosis in the body.

The manner of inoculation of the genitalia has been much discussed. It is now well established that infection is possible, either by the descending route, in which the infection, secondary to some preëxisting tuberculous focus, is transmitted to the genitalia by the blood or lymph currents or by extension of continuity; or the ascending route by which a primary genital infection is produced through coitus with a tuberculous male, by infected hands or clothing, or even possibly by dust containing tubercle bacilli. The former process is of far greater frequency.

In my case the primary focus consisted of an enormous growth of tuberculous cervical glands. The notes in detail are as follows:—

M. H., a nulliparous, married mulatto woman of 32 years was referred to me by Dr. J. T. Potter, of Philadelphia, and admitted to the Gynecean Hospital, December 14, 1906. The patient's family history was not relevant.

She had always been of fragile health, and since childhood had suffered from cervical adenitis, the glands being resolved into nodular masses fully as large as oranges, and extending down both sides of the neck to unite under the chin. The glands were so large as to make the existence of Hodgkin's disease probable until further investigation proved the contrary. Four attempts had been made to extirpate the cervical glands, but without success.

Examination of the lungs elicited no sign of disease and the heart was likewise normal. The patient was poorly nourished and her mucous membranes pale. Her chief complaint was of great frequency of urination,

[1] Read before the Philadelphia Obstetrical Society, Feb. 6, 1908.

with irritation and pain in the vagina and marked dyspareunia. Her menstrual history was uneventful, the catamenia being established at 14, and continuing regular and normal, the flow profuse and lasting 4 to 5 days. She had a profuse leucorrhœa, and just previous to admission she had missed two periods.

Vaginal examination disclosed a tender and indurated vaginal vault, the cervix uteri large, excavated and presenting a rough yellowish, friable surface, which bled on touch, and which showed yellow, sloughing nodules scattered over its surface. The uterus was large and boggy, absolutely fixed in the normal anterior position. The tubes and ovaries were adherent. The urine was negative save for the presence of a few pus cells.

The diagnosis lay between carcinoma of the cervix, tuberculosis and syphilis of the uterus. The latter was excluded by the absence of any of the other characteristic lesions of the disease and by the history.

A diagnosis of tuberculosis of the uterus was reached by the presence of the large tuberculous focus in the neck and by the yellow, sloughing masses in the cervix, closely resembling those necrotic tubercles encountered elsewhere. It was impossible to eliminate absolutely adeno-carcinoma of the cervix and the ordinary squamous epithelioma of the cervix.

Panhysterectomy was then proposed and accepted and the operation was accordingly performed. On entering the peritoneal cavity the entire pelvis was found to be a mass of old, dense adhesions, the small intestines and the sigmoid being bound tightly to the pelvic organs. Save for the adhesions the intestines were normal.

The uterus, about twice the usual size, was found embedded in adhesions, the indurated broad ligament holding it absolutely fixed. The adnexa were, naturally, tightly bound down. The tissues were so friable that in order to enable the ligature on the uterine artery to hold, it was necessary to cut and isolate the left ureter. This was done and the end transplanted into the bladder by the Baldy method.

The uterus, adnexa and vaginal vault were then removed, the wound closed and the patient returned to bed. After 48 hours, but very little urine having been voided, it was suspected that the remaining ureter had been tied and the abdomen was reopened. The right ureter was found carried high on the pelvic wall by the tuberculous infiltration of the broad ligament, and constricted by a ligature. This was cut and the ureter implanted into the bladder wall opposite its fellow. Convalescence was uneventful although delayed by a urinary fistula which persisted for one week.

A good prognosis had been given in this case, based upon the fact that since the primary focus in the neck had remained latent for so many years, and had produced secondary manifestation only in the genitalia, the lungs and peritoneum remaining healthy, it was reasonable to hope that removal of the active secondary field would lessen the chances of reinfection from this source, while it would not tend to light up the latent focus in the neck.

The prognosis seems justified, as the patient is now, over a year after operation, in excellent health, having gained 35 pounds in weight.

The specimens obtained were the uterus, the vaginal vault, and both

appendages. The uterus is larger than normal, its surface rough, and covered with remnants of old, dense adhesions, the peritoneum rough and ragged. It is soft and boggy in consistency. On section the uterine muscle is much thinned out, the cavity of the organ dilated (5-4-3cm.) and filled with thick pus, nearly one ounce being released when the uterine cavity is entered.

The entire mucosa is wanting, it being replaced by a thick layer of necrotic tissue. The inflammatory tissue invades the uterine muscle for the distance of 2 or 3 mm., but in no case can gross inflammatory change be detected on the peritoneal side of the uterine muscle. The cervix is thickened, excavated out in a crater-like cavity lined with a grayish, necrotic membrane. The cervical tissues are not deeply invaded by the inflammatory process, only the superficial layers being involved.

The internal os is closed by inflammatory exudate, the pyometra being absolutely walled off.

Both tubes and ovaries are the seat of old catarrhal inflammation, involving more especially their peritoneal surfaces, which are covered and matted together by adhesions. The tubal mucosa seems normal. The ovaries show some perioöphoritis but are otherwise normal. The portion of vaginal vault excised seems thickened and indurated, but presents no areas of ulceration or the like.

Histological Examination.

The Vaginal Vault.—Here the epithelial covering is practically intact, being absent in a few areas only. The stroma is injected, the seat of a dense round cell infiltration, and occasionally a typical tubercle is encountered. The blood-vessels are numerous and distended.

The Cervix.—The entire cervical mucous membrane is destroyed, the cervix being lined by a thick necrotic tissue, showing no cellular arrangement. All traces of glands are lost. The connective tissue of the cervix is densely packed with typical tubercles in various stages of development, most of them consisting of a central giant cell surrounded by large epithelioid cells, and these again surrounded by areas of dense round cell infiltration.

Some of the tubercles have gone on to caseation, others are in the developmental stages. In the deeper portion of the cervix the tubercles become smaller and more scattered, until at the external surface the stroma is nearly normal.

The Uterus.—The entire mucosa is destroyed, being replaced by an amorphous necrotic tissue similar to that lining the cervix. At the lower uterine segment the muscle is studded with tubercles, some with the central giant cells, others mere nests of epithelioid cells surrounding areas of caseation.

As the fundus is approached the tubercles become more scarce and atypical, and in the deep subperitoneal layer of the fundus no tubercles are noted, some œdema of the uterine wall, and a moderate degree of round cell infiltration being the only trace of disease noted. Nowhere can any tuberculous glands be made out.

Tubes.—The tubes show hypertrophy of their muscular coat, some round cell infiltration of their walls, but no evidence of tuberculosis.

Ovaries.—Show a perioöphoritis.

The diagnosis in detail, then, was papillary tuberculosis of the cervix, caseous tuberculosis of the fundus uteri with invasion of the muscular coat, and early ulcerative tuberculosis of the vagina. The points to be especially emphasized in the above case are as follows:—

1. The diagnosis, which is practically impossible save by exclusion and by the examination of excised tissue.

2. The involvement of the entire genital tract with the exception of the tubes and ovaries. This is unusual in a case of secondary infection, since the blood and lymph currents carry the bacteria to the uterus first, and then out through the broad ligament to the tubes.

3. The treatment: It is the opinion of the writer that genital tuberculosis, especially where primary, is a perfect indication for radical surgical measures. It would seem that to merely curette a uterus known to be the seat of a tuberculous endometritis or to remove one infected tube, leaving the other, would be to invite a continuance of the disease in neighboring structures.

It is true that this view is opposed by many men—Sippel, Walther, Munchmeyer, and others who advocate most conservative measures. The majority, however, Doderlein, Schauta, Murphy, etc., look on conservatism in uterine tuberculosis as merely palliative and advise complete removal of infected or suspicious structures.

It must also be remembered that genital tuberculosis is rarely inoperable. Had my case been one of carcinoma, panhysterectomy would have been impossible in view of the condition of the tissues, whereas the changes due to tuberculosis offer great surgical opportunities.

348 South Fifteenth Street.

THE THYROID PREPARATIONS IN PRACTICE.[1]

By CHARLES E. de M. SAJOUS, M.D.
PHILADELPHIA.

Probably the most striking evidence of the value of our remedies, and one which controverts most emphatically the pessimistic tendency of our day, is that afforded by the use of thyroid extract in cretinism or—a better term—infantile myxœdema. As Osler wrote some years ago, "no type of human transformation is more distressing to look at than an aggravated case of cretinism. The stunted stature, the semi-bestial aspect, the blubber lips, retroussé nose, sunken at the root, the wide-open mouth, the lolling tongue, the small eyes, half-closed with swollen lids, the stolid, expressionless face, the squat figure, the muddy, dry skin, combine to make the picture of what has been well termed the 'pariah of nature.' Not the magic wand of Progress, or the brave kiss of the daughter of Hippocrates ever effected such a change as that which we are now enabled to make in these unfortunate victims, doomed

[1] Read by invitation before the J. M. Anders Medical Society, Philadelphia.

heretofore to live in hopeless imbecility, an unspeakable affliction to their parents and to their relatives. Within a month to six weeks after the administration of thyroid, loss in weight is noticed, due to disappearance of the myxœdematous condition and fat. The face becomes smaller, the puffiness about the eyes abates. The projecting abdomen diminishes in size, the child's figure improves in shape. The hair becomes finer and more abundant, and the skin loses its roughness and yellow hue." Soon also the mental capacity improves and ultimately a normal average child is evolved out of the idiotic dwarf that was.

How is this wonderful change accomplished? Physiology tells us that the thyroid gland and its glandules, the parathyroids, are of "great metabolic importance," but *how* do they influence the cellular exchanges and nutrition to a degree sufficient to promote growth and development of all tissues including the brain? As stated by a French physiologist, Laulanié:[2] "For the time being one can perceive no solution of this problem."

This does not mean that physiologists have not contributed much to our knowledge of these organs. Indeed, we owe them the great majority of sound data at our disposal, but as one of their number, Professor Pawlow, of St. Petersburg, urged some years ago: "In many instances the physician gives a more correct verdict concerning physiological processes than the physiologist himself," clinical medicine being in his opinion, "a rich mine of physiological facts." This is particularly applicable to our knowledge of the functions of the ductless glands, and it is the result of an effort in the line suggested by Prof. Pawlow, that I wish to submit to you to-night. Indeed it has appeared to me that clinical medicine could furnish data which added to the many contributed by physiologists would make it possible to explain not only the functions of the thyroid apparatus, but also those of other glands, which secrete their product into the blood itself.

A satisfactory explanation should account for all phenomena evoked by a given remedy; in the case of thyroid extract, clinical observation renders it necessary to explain many such, not only those connected with increased nutrition, strength and growth, but also, phenomena which appear quite antagonistic to these: emaciation, general vaso-dilation, increased combustion of physiological wastes, and augmentation of the bacteriolytic and antitoxic power of the blood. This is certainly a large contract and, I may add, one which submits any explanation submitted to a very severe test.

You will be spared, however, gentlemen, the experimental and clinical data which have served to elaborate the views I have to offer: Referring you to the two portly volumes in which they are recorded, I will merely submit the conclusions reached.

It has long been known that the functions of several ductless glands were more or less connected. The nature of this relationship has, however, remained obscure. My own labors have shown that three of these, the thyroid (including the parathyroids), the pituitary, and the adrenals, were related

[2] Laulanié: Elements de Physiologie, 2d Ed., p. 485, 1905.

as follows: (1) that the *secretions* of the thyroid and parathyroids, acting jointly, increase the vulnerability or sensitiveness of all tissue-cells, wastes, bacilli, toxins, etc., to oxidation, by a direct action on their phosphorus, thus constituting the substance now known under various names: "opsonin," "agglutinin," "precipitin," "sensibilisatrice," etc.; (2) that among the tissues thus sensitized is the governing center of the adrenals which center I have traced to the pituitary body; (3) that the adrenal secretion carried to the lungs with the blood of the inferior vena cava, is the substance which takes up the oxygen of the air; (4) that the adrenal secretion, when thus laden with oxygen, becomes the oxidizing constituent of the hæmoglobin which sustains the body-heat, metabolism and nutrition; and (5) that the power of the blood to destroy bacteria, their toxins, toxic waste-products and other poisons corresponds with the proportion of thyroparathyroid and adrenal secretion it contains. In short, the thyroid, the pituitary body, and the adrenals thus connected by nerve-paths act jointly to enhance, when needed, general oxidation and produce a heretofore unexplained phenomenon, fever.

When, in the light of the above, we administer desiccated thyroid, which combines the actions of the thyroid and parathyroids, corresponding effects are produced: It renders the phosphorus of all tissues, and all free substances such as bacteria, wastes, toxins, etc., containing phosphorus, more inflammable or sensitive to the action of the oxygen in the blood. As this applies particularly to nerves and nerve-centers (all of which are especially rich in phosphorus) the adrenal center, and therefore the adrenals themselves, are excited and the adrenal secretion being the agent which takes up the oxygen of the air to sustain the blood's oxygenizing power, the supply of oxygen is also increased. All the various phosphorus-laden substances are thus not only rendered more readily oxydizable by thyroid extract, but this remedy also provides indirectly the required oxygen. This is not all, however. As the functions of all organs are enhanced by this process, the pancreas and the leucocytogenic organs are also stimulated, and trypsin and phagocytes, which are the active destroyers of pathogenic organisms, toxins and other poisons, are also increased. Briefly, under the influence of thyroid preparations, we have in the blood—and demonstrable therein—all the active agents concerned with metabolism, nutrition and immunity the identity and source of which have remained obscure: an increase (1) of adrenal oxidizing substance (the albuminous constituent of hæmoglobin and Ehrlich's amboceptor); (2) of thyroid sensitizing substance (Wright's opsonin); (3) of trypsin (Ehrlich's complement and Metchnikoff's cytase); and (4) bacteriolytic leucocytes (Metchnikoff's phagocytes).

The effects of thyroid extract in cretinism can now be accounted for—notwithstanding their great number: The *rise of temperature* is due to the increased oxidation brought about by the thyroid and adrenal oxidizing substances acting jointly; the *enhanced metabolism* is a normal result of the augmentation of general oxidation, while the *increased appetite* is due to the resulting greater demand for food-stuffs. The marked improvement in *general nutrition* and *strength* is a self-evident result of the assimilation of

a greater proportion of food-materials, and the *rapid growth* likewise. The *cerebro-spinal system* is particularly influenced owing to its wealth in phosphorus, hence the *development of intelligence.* All organs being the seat of active metabolic activity and nutrition, the intestinal, renal, cardiac and cutaneous and hepatic functions are all enhanced. Even the hair grows bountifully not only in cretinisms, but when its loss is due to general adynamia. It counteracts *premature senility* in all its phases by restoring to the organism the one constituent which sustains the functional efficiency of all its parts.

This, I must here emphasize, is the aggregate of effects obtained with *small* doses, at most, 2 grains of the desiccated thyroid (which represents 10 grains of the gland proper), three times a day. When larger doses are given another order of phenomena is awakened: those of excessive burning up, as it were, of the tissues. The inflammability of all phosphorus-laden elements being markedly enhanced while the quantity of oxidizing substance is as greatly increased, the tissue elements are broken down more rapidly than they are built up, beginning with the fats, and the patient becomes emaciated. Hence the efficiency of thyroid extract in obesity, but only in unsafe doses, I may add, when the heart, even though apparently normal under ausculation, happens to be weak.

No less wonderful, in my opinion, than the rôle of thyroid preparations in cretinism and myxœdema, is their influence on the immunizing mechanism of the body, which I pointed out six years ago, when I described this mechanism. You have heard much of Prof. A. E. Wright's illuminating labors, his results with tuberculin, vaccines, etc., and his opsonin index; but let me assure you that when thyroid preparations are judiciously employed, that is to say, when their action is controlled by giving only carefully adjusted doses, and the concomitant use, if needed, of other agents—iron for example to supply the hæmatin necessary to build up the hæmoglobin molecule when with thyroid we wish to increase the albuminous moiety of that molecule, strychnine when the blood-pressure is too low to insure adequate tissue nutrition, etc.—quite as much can be done, and with greater scientific accuracy and safety, than with vaccine therapy. Thyroid preparations, with proper adjuvants—all familiar drugs of our pharmacopœia—supplies directly in many instances what vaccines supply only indirectly.

The desiccated thyroid of the sheep, which appears in our pharmacopœia, one grain of which represents five grains of the fresh gland, is, on the whole, the most reliable preparation at our disposal.[3]

The diseases in which thyroid extract may be used advantageously and its action therein, are briefly as follows:

1. *Disorders of Nutrition.* The diseases included in this class which are benefited by thyroid extract are obviously, in the light of the foregoing state-

[3] The average dose recommended in the pharmacopœia, 4 grains, is too large. In most adults I rarely find it necessary—except in the treatment of obesity—to give more than 3 grains during each meal, beginning with 1-grain doses and increasing very gradually.

ments, those in which general oxygenation and metabolism are deficient, the most exaggerated types of which are cretinism and myxœdema. It is also effective, however, in those disorders in which pallor and general asthenia are present—in anæmia and neurasthenia for example. The addition of a single grain of the desiccated extract daily to strychnine, and iron, increase strikingly their efficiency. It has been found harmful in some cases of acromegaly, but when we recall that the first stage of this disease is due to overactivity of the pituitary body and overnutrition, it becomes apparent that it is only useful in the advanced or asthenic stage, when the pituitary is breaking down.

2. *Disorders due to Toxic Waste-Products.* These disorders are closely allied to the former. But here the deficiency of oxidation manifests itself by an inadequate breaking down of waste-products and these by accumulating in the blood provoke the many disorders grouped in the so-called "gouty diathesis" which directly or remotely include migraine, asthma, some forms of acne and melancholia. The wastes that the fœtus adds to those of a pregnant woman are often sufficient to provoke either of the disorders just enumerated. Tetany, tetanus, puerperal eclampsia, epilepsy before gliosis has been allowed to develop, are all due, at least in part to toxic wastes, which the blood has failed, owing to inadequate activity of the thyroid and adrenals, to destroy. Chronic rheumatism is another disease of this class which slowly but surely yields to small doses of thyroid. A curious action of this agent in this connection is its gradual reduction of the accompanying hydrarthrosis; but this effect is readily explained when it is recalled that certain wastes cause a marked rise of the vascular tension; the remedy, by destroying the wastes causes the vessels to resume their normal calibre and the joints, are thus freed of the excess of fluid forced into them.

3. *Infectious Diseases.* In true infectious tonsillitis, desiccated thyroid clears the field very promptly. It does so of course by enhancing the bactericidal and antitoxic powers of the blood and glandular secretions. The bacteria being rendered more sensitive, that is to say, more easily digestible, they readily become the prey of the phagocytes which are extremely numerous in the tonsils. Pulmonary tuberculosis, before the disease is sufficiently advanced to compromise the whole mechanism of respiration, that is to say, during the first and second stages, is especially vulnerable to the action of thyroid. The tubercle bacillus which, as you know, is also pathogenic when dead, owes its morbid action to an endotoxin rich in phosphorus; being thus rendered extremely inflammable while the blood's oxidizing power is enhanced simultaneously, this pathogenic organism is promptly destroyed. This applies also to lupus. In syphilis, the use of thyroid, based on the views I have advanced, has been termed "marvelous" by other observers. It has been used with success in acute infections, including the exanthemata which may often be curtailed by its judicious use.

4. *Diseases due to Deficient Reparative Power.*—Another very interesting phase of the action of thyroid preparations, which is made clear by my interpretation of its mode of action, is its influence on the processes of repair. An osteomyelitis of long standing will, after a few days, change its aspect and

proceed to recovery, necrotic tissues and bone being gradually eliminated. Surgical aid for the removal of this detritus, which before had afforded no benefit, is now followed by prompt healing. Osteomalacia and rickets are similarly influenced. A striking effect is in delayed union of fractures; cases which had remained several weeks without giving the least evidence of repair, seem endowed with new life, and the union is soon complete.

Of very great importance in this connection is the influence of thyroid preparations in cancer. I pointed out in 1903—a view which has been confirmed since by independent experimental evidence contributed by Ehrlich and others—that this dread disease was due to deficient immunizing activity, "the blood being deficient," as I then wrote, "in the four constituents which should insure destruction of the morbid cellular elements"—the identical ones, we have seen, which thyroid preparations directly and indirectly supply to the blood. Many cases are on record in which thyroid preparations have failed to do good; worse than this, it may be said that in these cases it actually did harm! But study these cases as I have, and you will see that the clinicians who obtained such results acted on the belief that since a small quantity does good, a large quantity must do more good. The results under such conditions are self-evident: the doses administered were not the small ones which enhance nutrition and the activity of the reparative processes, including the preliminary breaking down of cellular aggregates that are useless to the needs of the body, but the large doses that destroy not only the malignant growth itself, but the body as well.

And the action of thyroid preparations exemplifies, in the light of my views, the logical aim, the Medicine of the future, a Medicine quite as efficient in its results as modern Surgery. Dr. Robert T. Morris wrote recently: "About the middle of the last century a number of surgeons were calling attention to the desirability of rapid operating, and promulgating the idea that patients recovered more quickly when the attack of surgery had been of short duration. The idea was based upon ordinary observation, rather than upon science, at that time. Into the field came Pasteur, Semmelweiss, Lister. The attention of the whole surgical world was diverted toward questions of antisepsis and of asepsis. The patient himself was forgotten in our skilled maneuvers against the bacterium. Tait stood out alone upon the plain in the midst of the whirlwind, and his statistics were too good to be generally accepted. He stood upon his *ipse dixit* rather than upon a basis of scientific explanation, which to-day can be given. The dominant idea became that of preventing nature from growing her favorite colonies of bacteria at our expense, and we were to accomplish the task by our artifices. That is the dominant idea right now. It is crude and incomplete, and is shortly to be rounded out by the idea of conserving the natural immunity of the patient, and of holding his opsonic index up, even as the hands of Moses were held up. The patient himself is to be our best ally, and in our pride of achievement with artifices against the bacterium, we are not much longer to disregard such an ally as nature gives us in the patient."

Cyclopædia of Current Literature

ARTERIOSCLEROSIS, PATHOGENESIS OF.

The recent increase of attention to the clinical study of the peripheral circulation is attributed by the writer to the introduction of mechanical appliances for the measurement and registration of blood-pressure. Atheroma, it is affirmed, is a purely local affection of the arterial wall, the lumen of the vessel being narrowed, while its walls bulge and are weakened and distorted. Arteriosclerosis consists in thickening of the whole circumference of the arterial wall along considerable stretches of the vessel and usually over a large vascular area. The two diseases are quite distinct from each other as to mode of origin, area of distribution and ultimate effects on arterial walls and circulation.

The exact cause of arteriosclerosis has not yet been positively determined. Theories abound which differ materially from each other, but the author regards as most probable, in view of the absence of uniformity, in conjunction with the correlation of the morbid changes in the disease, that such changes represent stages in the operation of a single pathogenetic process, which commences with increase of function and hypertrophy of the arterial muscular coat, progresses with functional failure and degeneration of the muscular substance, and culminates in hyperplasia of the fibrous tissue elements of the arterial wall. E. H. Colbeck (Practitioner, December, 1908).

ASTHMA.

The asthmatic paroxysm from start to finish—the spasm of the bronchial and inspiratory muscles, the infiltration of the lungs, the carbonæmia, the leucocytosis, the output of mucous bodies, spirals, eosinophiles, and the rest—is truly and strictly a process of defense. The disease, therefore, or specific source of irritation, is for the time being in the lungs; and, whatever its nature, it seems early to excite contraction of the bronchial muscles, probably much in the same way as impure blood is believed to excite contraction of the arterioles. In the absence of a specific organism, it is the secretion—the expectoration—and the blood changes, on which the diagnosis is to be relied, and not the spasm. After cessation of the spasm the disease is still there. Reflex bronchial spasm can be set up in many other ways, and especially by irritation of the nasal mucosa. The causative agent of asthma is merely a matter of speculation. The long duration of the affection is not necessarily against its being microbial. It may, however, be a toxine or leucomania, which is either of distinctly pathological origin or else a product of normal metabolism, which gradually accumulates in the blood by reason of some defect, congenital or acquired, in the excretory function of the lungs. There is little doubt that the lungs are avenues for the excretion of unknown poisons. Asthma commences usually about 2 or 3 a. m., when the opsonin or preopsonin content of the blood reaches its minimum; there is perhaps a parallel instance in cramp, which is supposed to be due to a toxin acting on the muscles. During the actual attack of asthma the most that can be done is to relieve the dyspnœa. Any attempt to check it

suddenly by powerful agents is not good practice. It is best to mitigate the spasm by agents which, like the nitrites and potassium iodide, do not at the same time imperil the natural order of cure. Morphine, cocaine, etc., are apt to suppress the secretion, and act prejudicially by diverting the disease into fresh channels. The supposition that asthma is an incurable disease should be dismissed. Careful research should first be made for any irritative lesion capable of exciting bronchial spasm. The nose, nasopharynx and the stomach are of chief concern. Next it should be noted that asthmatics exhibit idiosyncrasies in respect to environment just as they do to drugs. Some do well in cities, others in the open countries. The lungs must be properly ventilated, and regulated hill climbing is an excellent form of pulmonary exercise. Swimming is an ideal form of exercise for asthmatics. Asthmatics do not bear large or full meals, nor any food that is slow and difficult of solution in the stomach, but they do well on animal foods of the lighter kind and in moderate quantity. Few asthmatics can tolerate alcohol in any form. A peculiar anæmia often characterizes the asthmatic diathesis, and for this iron, with or without arsenic, is often beneficial. A. G. Auld (British Medical Journal, December 26, 1908).

BURNS, TREATMENT OF, GENERAL.

The general symptoms are the most important in burns of any extent. Such symptoms may originate in the brain, in the heart, or in the kidneys. It is possible that the effect of heat upon the skin results in the development of toxins, which affect the general system of the patient. The heart is usually weak and fast, the vessel tone diminished, the temperature may fall and hæmolysis may take place. To meet these conditions intravenous injections of heart stimulants may have to be used, and much fluid should be administered to the patients by the mouth and per rectum. There is no contraindication to the use of opiates, for the intense suffering of the patient has a very bad effect upon his condition and must be relieved.

The best treatment for the local lesion is that of Tschmarke and consists of cleaning the burned areas as thoroughly as is done for a surgical operation. As a rule, either local or general anæsthesia is required to accomplish this, the pain being intense. The surface is then covered with abundant layers of gauze, the upper layers of which have to be frequently changed because of the secretion from the wounds. Such cleaning of the burned surface prevents the death of small portions of epithelium lining the glands, because infection is prevented and these islands of epithelium become the starting points for the growth of new skin. If infection of burned areas has occurred, alcohol compresses and then incision and evacuation of pus is indicated. The contractures that often remain after severe burns must be treated by plastic surgical procedures. Pels-Leusden (Deutsche medizinische Wochenschrift, November 26, 1908; Medical Record, December 26, 1908).

DYSMENORRHŒA.

The condition of the endometrium is dependent upon ovulation and many appearances that previously were looked upon as pathological are simply the physiological conditions present in the menstrual or post-menstrual time. This recent view diminishes the number of anatomical lesions which can be held responsible for the symptom dysmenor-

rhœa. The writer defines menstruation as the abortion of an unfertilized ovum; ovulation should naturally be followed by impregnation, but as it does not every time in the human race the various phenomena of ovulation must be conquered, which adaptation is outwardly shown by the function of menstruation. A nervous individual may react abnormally to the impulses of ovulation; in her the phenomena of conquering such impulses may not occur and the result is one of the forms of nervous dysmenorrhœa. Another form is due to the faulty development of the uterus with coexistent abundant sexual excitement; the latter leads to changes in the ovaries and in the endometrium and to the symptom of dysmenorrhœa, which in this case depends upon both anatomical and functional disturbances. The third form is the purely mechanical one due to some local disease or anomaly of the uterus or of the neighboring organs. The nervous forms of dysmenorrhœa are to be treated by measures affecting the general health or by directing the treatment upon some possible source of peripheral irritation, attention to which may have a salutary psychic effect. The latter mode of treatment may include the cocainization of the nasal mucosa, a procedure by which Fliess claimed to cure all cases of dysmenorrhœa whatever. In all dysmenorrhœas of virgins the patient must be examined for neurasthenia and the latter disease treated, if present, rather than the symptom of it in the genital sphere. In case neurasthenia symptoms are absent a gynæcological examination and eventually operative treatment in the form of a curettage may be tried. Veit (Münchener medizinische Wochenschrift, November 24, 1908; Medical Record, January 2, 1908).

GLYCOSURIA IN PREGNANCY, CLINICAL SIGNIFICANCE OF.

A positive reaction with Fehling's solution during pregnancy is usually due to lactosuria, or to transient, alimentary, or recurrent glycosuria. In such cases lactosuria is probably associated with premature activity of the breasts. If glycosuria in such cases is alimentary it may be disregarded. Otherwise it may be transient or recurrent, or may indicate true diabetes. Glycosuria late in pregnancy, not exceeding two per cent., unaccompanied by symptoms, is usually transient, but may persist to the end of pregnancy. It is usually of slight clinical significance, but the patient should be carefully watched. If much sugar is observed early in pregnancy, it may be impossible to make a diagnosis until after delivery. The condition will then disappear in glycosuria cases, but persist in true diabetes. Pregnancy may occur in diabetic women, or diabetes may become manifest during pregnancy. Either complication is serious; some patients will survive, others will die, in coma or collapse at the end of pregnancy or during or after labor. If the quantity of sugar is large and cannot be controlled by diabetic and medicinal treatment, induction of abortion or premature labor will be indicated, even though serious symptoms may be absent. J. W. Williams (American Journal of Medical Sciences, January, 1909).

GOUT, TREATMENT OF, BY THYMINIC ACID.

The use of thyminic acid for the elimination of uric acid (as in gout) has its support on a solid scientific basis. The synthetic manufacture of thyminic acid is now an accomplished fact, and the writer has obtained most excellent results by its use in cases of gout. By the

oxidation of the purin bodies thyminic acid is produced as well as uric acid, and these two substances form a combination in which the uric acid loses its identity and can no longer be precipitated. It is as a constituent of this compound that uric acid circulates in normal blood. In gout the amount of uric acid in the blood may not exceed the normal, the trouble being that its combination with thyminic acid has not taken place or has become unstable. If thyminic acid can be introduced into the blood by ingestion or other method in sufficient quantities to retain the free uric acid in circulation, the method of rendering the latter soluble is found.

Turning to the clinical results of the treatment of the gouty state by thyminic acid, the writer is convinced that we possess a very valuable and powerful agent, especially in the prevention of recurrent attacks of acute gout and in the cure or amelioration of the more chronic forms, and of the many ailments that are marked by the excessive formation of uric acid within the system. It is in the prevention of attacks of acute gout, in the obesity so often allied with the gouty state, in gouty eczema, asthma, glycosuria, and stomachic derangements that thyminic acid attains its maximum of usefulness. A small dose (four grains) taken daily after meals for a prolonged period, say of three months, and then every alternate week will, in most cases, entirely avert the onset of acute symptoms. When an acute attack of arthritic gout is actually in evidence, thyminic acid is not invariably successful, and the author prescribes mercurials with colchicum, or colchicine with asperin; then as the symptoms abate large doses of thyminic acid are given in conjunction with local treatment by the x-ray light bath, and the pain and swelling quickly subside. It is a decided proof of the efficacy of the drug that it renders inert any excess of uric acid, which in some peculiar way alcohol in any form often produces. R. Fenner (Lancet, December 19, 1908).

HÆMORRHOIDS, NEW OPERATION FOR.

After the usual preparation of the patient, the tumors are exposed successively and held between the thumb and the finger or with forceps. An incision is then carried in the long axis of the bowel through the mucous membrane, care being taken so as not to wound the blood-vessels. The blood-vessels being now exposed, they are grasped with forceps and traction applied. This, as a rule, will liberate the vessels; if not, the use of a small, blunt spoon or curette will materially assist in breaking up inflammatory adhesions of the connective tissue. When by this method the hæmorrhoidal vessels are thoroughly exposed through the cut in the mucous membrane, a ligature of small-sized catgut is applied above and below. Now the vessels are extirpated with scissors or knife. The incision in the mucous membrane is closed with like suture material. It is found, however, that unless the incision is large it heals just as readily without suturing, being hermetically sealed with a blood-clot. Should too much redundant tissue remain, it may be removed, carrying the incision in the form of an ellipse and closed as before. It is surprising, however, how much the mucous membrane will shrink after removal of the vessels. The only dressing used is a sterile pad over the anal region. The operation is best performed without the use of sponging, a drip of boric acid solution being employed to keep the field clean. The operation is not applicable to the friable

or capillary form, nor to the so-called connective tissue or cutaneous hæmorrhoids. It is at once thoroughly surgical as well as simple. Little hæmorrhage during the operation and the danger of secondary hæmorrhage are reduced to a minimum. It is a comfortable operation for the patient; there is practically no pain. The edges of the wound are thoroughly coaptated, causing prompt healing and the absence of a cicatrix. The cause is removed, not merely a bunch of mucous membrane, as is often the case with other operations. C. W. Heitzman (New York Medical Journal, December 12, 1908).

RHEUMATIC MYOCARDITIS.

The so-called rheumatic nodules of the heart have attracted considerable interest since their first description by Aschoff and Tawara two years ago. The author, in a study of eight hearts of patients dying of the effects of rheumatism, found these nodules in all of them. In one case he investigated their distribution by means of serial sections, and found the greatest number were situated in the left ventricle near the apex and near the mitral ring, and near the root of the aorta. They were generally distributed along the branches of the coronary arteries. The nodule itself is apparently specific for rheumatism and consists of large spindle cells, often with several or many nuclei and probably of the nature of fibroblasts. They are taken to be inflammatory in nature. The other lesions were of less importance and consisted of fatty changes in the muscle fibres and foci of polynuclear leucocytes, the latter probably due to passive congestion. The author also presents tables showing that the majority of fatal cases of rheumatic carditis in children do not have valvular lesions sufficient to account for the hypertrophy and dilatation present. He considers that the latter are due chiefly to the myocardial lesions and not to the relatively insignificant changes in the valves. The mitral systolic murmur so often met with during life is ascribed to relative mitral insufficiency, the result of myocardial weakness. C. Coombs (Quarterly Journal of Medicine, October, 1908).

Book Reviews

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and especially prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pædiatrics, Obstetrics, Gynæcology, Orthopædics, Pathology, Dermatology, Ophthalmology, Otiology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world. Edited by W. T. Longcope, M.D., Philadelphia, U. S. A., Volume III. Eighteenth Series, 1908. Philadelphia and London: J. B. Lippincott Company, 1908.

This volume contains a large number of clinical lectures by American and foreign authors, chiefest among which and of special interest are those by Sir Dyce Duckworth, on "Sciatica;" Allison Scott, on "Perforation of the Intestines in Typhoid Fever;" "Melanotic, Neoplasms," by John H. Gibbon and Duncan Despard; Eldred M. Conner, on "The Modern Treatment of Fracture by Means of Direct Internal Splintage;" A. Schwab, on the "Disinfection of the Uterine Cavity in Puerperal Infection;" Mason Knox, Jr., on the "Diarrhœal Disorders of Infants;" Jeliffe Smith, on "General Paresis;" James Sherren, on the "Diagnosis of Injuries of the Peripheral Nerve from Those of the Spinal Cord;" "On the Treat-

ment of Traumatic Perforation of the Cornea," by Charles Delope; "On Leukæmic Retinitis," by Rochon-Duvifineaud; "Adenoid Vegetations in the Naso-Pharynx," by Morrison Ray; and "Studies upon the Etiology of Appendicitis," by Richard Kretz. The volume is well illustrated with numerous photographs and drawings from original preparations, and it has a very serviceable index.—B. C.

Borderland Studies. By George M. Gould, M.D.

From time to time Dr. Gould has sat himself down and turned loose the vials of his righteous wrath, condemning this or that abuse, folly or danger agent. He always carries the reader along with him, if not fortified by irremediable prejudices, and rouses to the very depths all the fountains of altruism which each one may have. What he says is always sincere and true, as he sees it, and most times correct. The pity of it is that not more people take the trouble to listen and profit by such good scoldings. And they are always couched in such charming phraseology.—J. M. T.

The Efficient Life. By Luther H. Gulick, Director of Physical Training in New York Public Schools. New York: Doubleday, Page & Co., 1908. Price, $1.20.

Dr. Gulick is particularly well equipped to speak authoritatively on all subjects connected with training of the body, so that it shall be a better temple for the soul. He has given us in this little book (which has hitherto escaped our personal attention), a series of essays on how to live sanely and wholesomely, which cannot fail to be of use to any one who will read them attentively. While it is not a systematic presentation of the subject of bodily hygiene, it nevertheless affords many useful, practical and scientific hints, and indicates principles of right action. The style employed is rather exhortatory, and doubtless by this means the attention of the casual reader is better seized upon. The book lacks finish and completeness, but perhaps it is not meant to exhibit either. The reviewer sincerely hopes that this book may have not only a wide circulation, but many attentive and obedient readers.—J. M. T.

Diseases of the Nose and Throat. By D. Braden Kyle, M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia. Fourth edition, thoroughly revised and enlarged. Octavo volume of 725 pages, with 215 illustrations, 28 in colors. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $4.00, net; Half-morocco, $5.50, net.

The appearance of the fourth edition of this work within a comparatively few years attests to its popularity among the members of the profession. Much of this well-earned recognition is undoubtedly due to the author's ability to treat the various subjects of the text in a manner which is comprehensive and illuminating to the reader, and which is in keeping with his position as a teacher and a writer.

A thorough revision has been made, and the new matter added includes the following subjects: "Taking Cold;" "Lithemic Rhinitis;" "Chemic Ulcers;" "Fibromyoma of the Naso-pharynx;" "Telangiectoma;" "Syphilis of the Septum;" "Empyema of the Antrum in the Young;" "Bone Cysts of the Accessory Sinuses;" "Rhino-pharyngitis Mutilans;" "Gangrene of the Tonsils;" "Glandular Pharyngitis Lateralis;" "Vincent's Angina;" "Angina Ulcerosa Benigna;" "Cyanotic Pharyngitis;" "Angioneurotic Edema;" "Pharyngeal Aneurysm;" "Cough;" "Purpura Hæmorrhagica;" "Congenital Stridor;" "Scleroma of the Larynx;" "Bronchoscopy;" "Voice, Speech, Defects of Speech, and Relation of Voice to Hearing;" "Functional Aphonia and Surgery of the Larynx." Other subjects have been altered and necessary additions made.

In contrast to many of the recent books, careful attention has been given to etiology and pathology of the different diseases, while additional data are given to the chemistry of the saliva and nasal secretions, and its relation to diagnosis and treatment of various diseases. The cuts throughout the book are good, and many of the drawings are particularly worthy of mention. As a further help to the reader, the contents of each chapter is outlined at its beginning.

Considering the prominence of the author and the increased value of the new edition, this work should continue to be an important asset to a doctor's library.—R. B. S.

On Means for the Prolongation of Life. Third edition. By Sir Hermann Weber, M.D., F.R.C.P. London: John Bale, Sons and Danielsson, Ltd., 1908.

In this third edition of Sir Hermann Weber's well-known monograph, we have the subject brought well up to date, and with a degree of wisdom and symmetry exhibited by none of the other authors who have attempted to deal with it. He has had the benefit of recent lucubrations, such as those of Metchnikoff, Sir Crichton-Browne and Sir Lauder Brunton. None the less, what was said by the author long ago needs little change, and whosoever will read this extremely agreeable little book, will certainly learn much to his advantage.

—J. M. T.

The Art of Natural Sleep. With Definite Directions for the Wholesome Cure of Sleeplessness. Illustrated cases from clinics in Northampton and elsewhere. By Lyman P. Powell, Rector of St. John's Church, Northampton, Mass.

It is evidence of a wholesome movement to see clerygmen thinking and speaking upon subjects overlying their sphere of jurisdiction, and yet technically lying within that of medicine. Sometimes they exhibit marvelously little physiologic knowledge, but their practical knowledge, when judiciously sifted, may serve good ends. It is only too true that the average medical men, including professors of physiology, know amazingly little of physiology and their observations will not stand washing, so that many subjects, such as sleep, are fair game for shrewd inferences based on empiricism. However, there is no accurate science yet of right conduct, and this must needs grow by gropings and many utterances, some of which are wise and some only partly so. The real explanation of the phenomena of sleep is woefully misunderstood, and only studied with accuracy by Sajous in Vol. II "Internal Secretions."—J. M. T.

A Manual of the Diseases of the Nose and Throat. By Cornelius Godfrey Coakley, A.M., M.D., Professor of Laryngology in the University and Bellevue Hospital Medical College, New York City; Laryngologist to Columbus Hospital, the University and Bellevue Hospital Medical College Clinic; Consulting Laryngologist to the New York Board of Health; Member of the New York Academy of Medicine, Society of the Alumni of the Bellevue Hospital, Medical Society of New York, Medical Society of the State of New York, American Laryngological, Rhinological and Otiological Society, etc., etc. Fourth edition, revised and enlarged. Illustrated with 126 engravings and 7 colored plates. New York and Philadelphia: Lea & Febiger, 1908.

The demand for this handy little work among students and practitioners, for whom it is intended, is signified by the necessity for a new edition. Few noticeable changes have been made, although the text has been carefully reviewed and necessary changes instituted to conform to the advances in diagnosis and treatment. The former articles on "Spurs and Deflection of the Septum" have been considered under a single head, "Deformity of the Septum," with the hope that it will greatly simplify the subject. A chapter on "Therapeutics" has been added, which will increase the value of the work. The author's careful investigations of the accessory sinuses of the nose and his large experience in the treatment of the diseases of these cavities is manifested in his skillful discussion of the subject.

With the revision of the text and the addition of modern methods in treatment, this small volume, which has reached its fourth edition, should continue to be a popular one among students of this specialty.—R. B. S.

Climate: Considered Especially in Relation to Man. By Robert DeCourcy Ward, Assistant Professor of Climatology, Harvard University. Illustrated. New York: G. P. Putnam's Sons. London: John Murray, 1908.

Climate has hitherto been regarded by medical men as of interest chiefly in regard to those who have some pulmonary or cardiac derangement, as modifying for better or worse the conditions of life, and especially in regard to life out-of-doors. The subject is now recognized

to be of much wider import, since we have learned the gravity of the influence of light zones and heat zones upon races. The study becomes one which is no longer an extra or auxiliary medical subject, but of immediate importance. We have seen many books dealing with the subject, but none which presents the various fundamental problems so clearly and practically as this by Professor Ward. Not only is the selection of a suitable climate essential to those of us who are blondes, but we must estimate the variants in the component factors of our race—*e.g.*, brunettes, reds, blacks, yellows, and the various intermediates. To be sure, medicine is a complex subject, and it has been made more so by its exponents. Members of the profession deplore the presentation of new problems. There is no excuse, however, in omitting to learn the fundamental acceptable principles with which all should be familiar. If only medical practitioners who desire to be really wise would acquire the habit of searching out the essential principles and ignore the endless pseudo-scientific inferences with which they are too often fed, they would quickly regain much lost potentiality. Climate is everywhere, and few are bad at first, while each can be bettered by local regulations.—J. M. T.

Emergency Surgery. For the General Practitioner. By John W. Sluss, A.M., M.D., Professor of Anatomy, Indiana University School of Medicine; Member of National Association Military Surgeons, etc., etc. 584 Illustrations, Some of them Printed in Colors. Chapters, 26; Pages 692. Philadelphia: P. Blakiston's Sons & Co., 1908.

It is fitting that a general practitioner should review this book, which is specifically devised for his use. Whether there may be other such books is not within our knowledge, but one of this character will certainly prove of great use. It is convenient in shape, size and general make-up. The illustrations are good, abundant and graphic. In fact, the book deserves a wide circulation.—J. M. T.

Functional Nervous Disorders in Childhood. By Leonard Guthrie, M.A., M.D., F.R.C.P. Oxford Medical Publications. London: Henry Frowde. Hodder and Stoughton, 1907.

A word should be said concerning the publications of the Oxford University Press. These are uniformly neat, well-balanced books, possessing the great merit of being light in weight and comfortable to the hand. We have three of these for review in this issue. The one on "Functional Disorders in Childhood" has been in our hands sometime, but the delay in reviewing has been caused by the fascination of the subject and the charm of the author's presentation, which has led us to read the book deliberately. The reviewer may make his feeling toward this book clear by stating his sincere wish that he could have produced the book himself. It deals with an exceedingly important subject, which is presented only fragmentarily in the text-books and in the biologic literature. Dr. Guthrie has given us an altogether charming, learned, practical and withal highly literary product. It is a temptation to quote from him extensively, but space forbids. The introduction alone gives much important information. This is followed by a chapter on the "Effects of Emotion on Health." The third chapter deals with the "Nervous System in Childhood;" fourth, "Types of Neurotic Subjects," and those which follow deal with hypersensitiveness of special sense organs, and a number of psychologic problems, which are treated at length only in such books as G. Stanley Hall's splendid treatise, "Adolescence." Then follow remarks on the "Disorders of the Sympathetic Nervous System," "Spasmodic Affections," etc., etc. All the subjects are admirably presented, and in such a manner that it cannot fail to interest all those who have closely at heart the welfare of the embryonic citizen.—J. M. T.

Glandular Enlargement and Other Diseases of the Lymphatic System. By Arthur Edmunds, M.B., M.S. (Lond.), F.R.C.S. (Eng.), Surgeon to the Great Northern Central Hospital, etc. London: Henry Frowde, Oxford University Press; Hodder and Stoughton, 1908.

This is a valuable book, dealing with a specific subject, yet exhibiting points of contact with the whole realm of practical medicine. The subject has been considered from both the practical and the surgical standpoints, and the anatomy is peculiarly well presented. The few illustrations are excellent.

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Clinical Lectures

DIABETES MELLITUS AND CATARRHAL JAUNDICE.

BY JOHN V. SHOEMAKER, M.D., LL.D.,
Professor of Materia Medica, Therapeutics, Clinical Medicine and Diseases of the Skin in the Medico-Chirurgical College and Hospital of Philadelphia.

DIABETES MELLITUS.

GENTLEMEN: The case before you this morning is interesting because he is suffering from a disease which affects the male sex more frequently than the female and it usually occurs between thirty-five and sixty years of age.

He is forty-eight years old, nativity America, and is employed as a conductor on a freight train.

Family History.—His father died at the age of thirty-two from pneumonia and his brother died at the age of fifty-two of diabetes. His mother is eighty-two years old and is apparently in good health. At the present time his sister is living but is suffering from diabetes. She is thirty years old. His grandparents all died of old age.

Social History.—He is married and has one daughter who is enjoying good health. His uncles and aunts are all well and none of them have diabetes.

Habits.—His habits are good except that he smokes excessively. He is a total abstainer from all kinds of alcoholic beverages.

Present Illness.—About two years ago he first noticed that he was voiding large quantities of urine and was compelled to get up from two to three times at night in order that he might urinate and thus relieve himself of the uncomfortable feeling. He states that he also experiences a constant burning thirst and this necessitates the ingestion of large quantities of water at frequent intervals night and day. Soon itching of the skin made its appearance and his appetite became abnormally large, sometimes insatiable. His digestion at first was good but dyspeptic symptoms soon made their appearance, such

as acid eructations, flatulence and epigastric pain. He complains of constipation and sometimes brief intervening attacks of diarrhœa occur. Later, extreme languor and weakness were characteristic. He observed that he was gradually losing in weight and was growing weaker. In less than a year he had lost fifty-two pounds, having weighed one hundred and ninety-five pounds at first, and now he weighs one hundred and forty-three.

His skin is harsh and dry due to the absence of perspiration. He states that he was frequently troubled with boils which is due to the malnutrition of his diseased condition. He also complains that he has very little sexual desire since he began to lose in weight and at times he notices a hazy condition before his eyes.

Urinalysis.—Color, pale; sediment, negative; specific gravity, 1038; reaction, acid; albumin, positive; glucose, positive, five per cent.; urea, increased in amount; acetone, positive; diacetic acid, positive; casts, many, hyaline; leucocytes, a few; erythrocytes, a few.

Diagnosis.—The diagnosis of this disease is easy. We diagnose this case as diabetes mellitus from the presence of sugar in the urine as indicated by Trommer's test and Fehling's test, from the polyuria, the emaciation and debility, the inordinate thirst and appetite. The diagnosis is also confirmed by the presence of acetone and diacetic acid in the urine.

Etiology.—This disease is attributed to a variety of causes. It is frequently a hereditary disease, occurring in families where the same disease or obesity or gout have occurred.

It is less common in the United States than in Europe and is more widely prevalent in agricultural countries than in the cities. It is rare in the negro race, and the Hebrew race is especially susceptible. It is a disease especially frequent in the better classes of society, though the poor are not exempt.

This disease attacks the male sex more frequently than the female sex. The majority of cases occur between the age of thirty-five to sixty years. Infantile diabetes is rare, though it has occurred in infants at the breast. The disease is more serious in the young than in the adult, recovery being rare. Nervous shock or strain, prolonged mental anxiety, excessive grief, traumatic injuries with concussion, act as a predisposing cause.

Overeating and sedentary life are causes of some importance, especially the milder form. Diabetes is also attributed to certain chronic diseases such as syphilis, gout, malaria, and it sometimes follows acute infectious diseases.

Diabetes is also attributed to:

1. Pancreatic disease. It has been assumed that the total loss of function always, and partial loss sometimes, leads to diabetes.

2. Organic and functional diseases of the liver. This is due to the interference with the glycogenic function of the liver.

3. May be caused by lesions of the brain and spinal cord. Puncture of the floor of the fourth ventricle, as originally done by Claude Bernard, will produce diabetes. Section of the pneumogastric is followed by vaso-motor paralysis of the hepatic vessels, disappearance of glycogen from the liver and the appearance of sugar in the urine. Tumors pressing against the floor of

the fourth ventricle, lesions of this part of the brain, abscesses and injuries to the brain and spinal cord, are attended by diabetes.

The sympathetic nerve is an important channel for nervous impulses, regulating, as it were, the opening and closing of the blood-vessels. I think that this patient has acquired a hereditary diathesis, as would lead one to think, from the condition of his brother and sister, and that the nervous strain put upon him through the nature of his work has been sufficient to aggravate the diathesis and bring on the present glycosuria.

Pathology.—Sometimes there are no altered conditions discoverable either with the naked eye or with the microscope. But, however, the majority of the cases present various conditions.

We find the liver often enlarged and fatty. Microscopically the liver cells are found to be enlarged, nucleated and globular in outline. These changes are more striking in the peripheral portion of the lobule. Since the liver presents the appearance of a hyperæmic organ, we find the capillaries dilated and the acini are enlarged and distinct. Incidental morbid states are hypertrophic and atrophic cirrhosis.

The pancreas shows morbid changes in more than one-half of the cases of diabetes. The most frequent lesion is granular atrophy. Associated with diabetes, calculus with atrophy of this organ have been found. Other coincident conditions of the pancreas associated with diabetes are cancer, occlusion of the pancreatic duct, and atrophy from pressure and cystic degeneration.

The lesions of gout (arteriosclerosis and cirrhotic kidneys) may be of the nature of mere concomitants, or may be the direct results of diabetes.

The changes met with in the kidneys are a well-marked interstitial nephritis with fatty degeneration. Albuminuria frequently develops. The tubal epithelium and the vessels of the Malpighian bodies may show a hyaline change. Other changes commonly met with in the kidneys are hyperæmia and overgrowth of epithelium—in a word, those of catarrhal nephritis.

Pneumonia and tuberculosis are among the frequent developments of late stages of the disease and which sometimes result in gangrene.

Skin eruptions such as eczema, furuncles and carbuncles are frequent in certain forms of diabetes. Sometimes gangrene of the extremities is common.

Marked catarrhal conditions and dilatation are the common changes in the stomach.

The heart is sometimes hypertrophied.

The blood is less alkaline than normal and contains an excess of solid matter, particularly when great polyuria has led to inspissation. The corpuscles show no alterations.

Treatment.—This patient should at once discontinue his occupation. He must rest and be free from all mental worry or excitement.

Medicinally we will first endeavor to correct his digestion by giving him:—

℞ Argenti nitratis,
Extracti hyocyami, of each..... gr. ¼.
Misce. Fiat pilula No. j.
Signa: One such pill a half hour before each meal.

Also to regulate his bowels and overcome his constipation we will give him the fluid extract of rhamnus purshiana from a half to a teaspoonful at bed-time as required.

The treatment in all of these patients must be chiefly dietetic. His diet for the next week or ten days, or at least until his digestion is better, will be absolutely nothing but milk. Milk by many physicians is forbidden owing to the fact that it contains milk sugar, but it must be remembered that it is easily assimilated. The tissues of a diabetic need sugar, but it cannot be assimilated when in the form of starch as found in many vegetables. Among the vegetables to be eaten are spinach, celery, horseradish, cress, dandelion, pickles, cranberries and onions.

In many patients a more limited diet of vegetables must be followed. The more farinaceous foods are always interdicted. An exclusive proteid diet is not always essential, yet in most cases of diabetes, eggs, meats, fish and cheese are very well borne, as are the fats and oils. Acid fruits and oily nuts add variety and are valuable in many patients. While diet is very essential, yet it alone is not sufficient to give the patient immediate relief. Drugs are necessary and if properly employed will do wonders to bring about happy results.

When this patient's digestion is better and he is in a position to digest solid foods he can then digest and approximate a combination which has given me most excellent results in a number of diabetic patients. It contains:—

℞ Codeinæ sulphatis ..... gr. v.
Arseni trioxidi ..... gr. ss.
Extracti nucis vomicæ ..... gr. iv.
Extracti rhamni purshianæ ..... gr. xv.
Extracti gentiani ..... 3j.
Misce. Fiant capsulæ No. xx.
Signa: One capsule after each meal and at bed-time.

He is rather far advanced in this disease and needs constant medical attention, and it may so happen that we will not be able to place him on the formula just given for some time. We will, of course, treat him on the merits of his symptoms.

CATARRHAL JAUNDICE.

The next patient for consideration is a case of catarrhal jaundice, a disease which is very common in young adults.

The patient's name is J. M., aged 25 years, nativity U. S. A.

Family History.—The history of his grandparents is unknown. His parents are alive and well; his father being fifty-eight years old, while his mother is forty-eight years old and both in good health. He has two brothers and three sisters all living and enjoying good health.

Personal History.—He is employed as a boss in a coal breaker, where he is exposed to cold and dampness. Four years ago he had syphilis, but outside of that he never complained of any diseases other than those of childhood.

Habits.—He had been a moderate drinker of alcoholic liquors but has given it up entirely and he also abstains from tobacco in any form. He partakes of tea and coffee moderately and is very fond of sweets, partaking of about three pounds a week. For the last fifteen years he has been dining late at night.

Present Illness.—In this patient the disease commenced with constipation and irregular action of the bowels. He complains of pain in the legs at night and morning. He is also very nervous, suffering with headache and vertigo. After eating he experiences a sense of fullness and is troubled with flatulence, fetid breath, nausea and vomiting.

Physical Signs.—His skin presents a yellowish color over the entire body, which is most marked on his forehead and neck. Percussion reveals an increase in the hepatic area which is confirmed also on palpation.

Urinalysis.—Color, straw; sediment, negative; specific gravity, 1024; reaction, acid; albumin, negative; glucose, negative; indican, marked reaction; bile, marked reaction.

Microscopic Examination.—Casts, absent; leucocytes, few; epithelial cells, few; urates, few.

Diagnosis.—The diagnosis is made from the history of habitual constipation with clay-colored stools, the lemon-yellow color of his skin and eyes, itching of the skin, the presence of bile and indican in the urine, the coated tongue, fetid breath, and attacks of indigestion, all of which are typical symptoms of catarrhal jaundice.

Differential Diagnosis.—This disease should be differentiated from acute congestion of the liver, acute yellow atrophy and hæmatogenous jaundice.

Catarrh of Bile Ducts.

1. Jaundice well marked.
2. Slight enlargement of liver.
3. Tenderness on pressure very slight.
4. Gastro-duodenitis precedes the hepatic symptoms.
5. Patient is stupid and drowsy.

Simple Obstructive Jaundice.

1. Temperature normal.
2. Slight enlargement in size of liver.
3. Presence of bile in the urine.
4. Stupor, coma and convulsions.
5. Headache severe.

Hepatogenous Jaundice.

1. Occurs with gastro-duodenitis, catarrh of bile ducts, etc.
2. Absence of albumin in urine.
3. Presence of bile coloring matter in the urine.
4. Jaundice well marked.
5. Itching of skin.
6. Fæces clay-colored.

Acute Congestion of Liver.

1. Jaundice slight.
2. Liver considerably enlarged.
3. Tenderness on pressure.
4. Gastro-duodenitis succeeds the hepatic symptoms.
5. Patient is dizzy at times.

Acute Yellow Atrophy.

1. Temperature elevated.
2. Liver diminished in size.
3. Presence of leucin and tyrosin in the urine.
4. Mind dull.
5. Dull frontal headache.

Hæmatogenous Jaundice.

1. Occurs with fevers, blood diseases, etc.
2. Presence of albumin in urine.
3. Presence of bile acids in the urine.
4. Jaundice slight.
5. Small hæmorrhages in the skin.
6. Fæces dark-colored.

Etiology.—The most frequent cause of such an inflammation is due to an extension of inflammation in gastro-duodenal catarrh into the common bile duct. In this case, the cause is attributed to the use of improper foods such as sweets, eating late at nights, exposure to cold and dampness as a result of his occupation. This disease may also be found in association with the infectious diseases such as pneumonia, typhoid fever and relapsing fever. Other causes are prolonged physical overwork and mental emotions.

Pathology.—The liver is swollen and possesses a lighter color than is normal. The biliary capillaries are distended with bile. The mucosa lining of the common duct is swollen and inflamed, and the catarrhal process may extend into the cystic and in some cases into the hepatic duct. Suppuration does not take place in this form of cholangitis. The gall-bladder is distended and the bile is absorbed by the lymphatics and ultimately reaches the circulation and discolors the tissue.

Treatment.—In treating this case we will first relieve his constipation by evacuating his bowels daily with the use of drugs that will stimulate both the secretions of the liver and bowels. For this purpose we will request him to take one or two pills as required, every evening at bedtime, of the following combination:—

℞ Massæ hydrargyri,
Pulveris jalapæ compositi,
Extracti colocynthidis compositi, of each.....gr. xx.
Olei menthæ piperitæ .....♏j.
Misce. Fiant pilulæ No. xx.

The drug *par excellence* in catarrhal jaundice to relieve the inflamed and swollen condition of the mucous membrane lining both the intestines and the various ducts of the liver is the fluid extract of hydrastis given in doses of twenty to thirty minims a half hour before each meal and at bedtime. This drug will not only act upon the involved mucous membrane but it will at the same time stimulate the dormant hepatic cells and liquefy the bile. The dilute nitrohydrochloric acid, which will also act as an intestinal antiseptic, and the natural salicylic acid obtained from gaultheria, are likewise valuable remedies in this disease.

We will first place this patient upon the fluid extract of hydrastis as previously stated. Also give him the high-frequency current over the hepatic area for its stimulating and tonic effect to the liver as well as for its general effect upon the entire organism. This form of electricity will act synergistically with the hydrastis to relieve the portal and hepatic congestion and facilitate the flow of bile.

The diet should consist of foods that do not require bile to facilitate its digestion or absorption, such as animal broths, boiled or poached eggs and skimmed milk. Starchy foods, vegetables and lean meat may only be taken in small quantities.

The patient must be encouraged to take water freely in order to assist elimination.

Prognosis.—The prognosis is always favorable and this patient will, I believe, recover rapidly by following strictly the advice and treatment we have just gone over.

THE SPIROCHAETE PALLIDA.

By WARREN C. BATROFF, M.D.,

Director of the Clinical Laboratories Medico-Chirurgical College and Hospital, Philadelphia.

Gentlemen:—We will consider to-day the spirochæte pallida, particularly in its relation to the etiology, pathology and diagnosis of syphilis. The organism is more correctly termed the treponema pallidum, as it is, in all probability, a protozoön rather than a spirochæte, the latter being more properly classed with the vegetable kingdom. The original name of spirochæte pallida will doubtless have the more common usage, hence I shall refer to it by that name.

As most of you are already aware, it is a very thin, pale corkscrew-like organism, varying in length from one to three times the diameter of an erythrocyte. Longer forms, however, occur; that these exceptionally long organisms are not two jointed lengthwise, I think, has not been proven. Their width is practically never over three-fourths of a micron. From six to twenty spiral turns are usually observed, depending upon the length. These windings are absolutely regular, and the individual turns quite acute. The ends are distinctly pointed and terminate at the periphery of the spiral, while the whole organism is usually somewhat curved. Flagella have been demonstrated in both the fresh and stained specimen. There is some evidence to warrant the statement that multiplication is probably like the trypanosomes by longitudinal fission.

In the stained specimen the organism usually lies free, although groups are not uncommonly seen, and while it may touch or lie around the erythrocytes, it has never been demonstrated in them. It retains the spiral form whether at rest or in motion, and when examined with the ultra-microscope, bodies suggesting nuclei have been seen. Never having been successfully cultivated outside the body, its life history is unknown, although the oval and spindle forms seen are regarded by Schaudinn as involution types.

To determine the presence of the spirochæte pallida in sections of tissue is a task of considerable complexity, and will not be described, as it particularly belongs to the field of the pathologist. The detection of the organism in the fresh or stained film is of greater interest to the practitioner. Its most decided characteristic is the extreme difficulty with which it can be made to take the stain; none of the anilin dyes will color it deeply, and once stained, it will readily fade. While most readily found in the moist, succulent lesions (chancre, mucus patch and condylomata) of the primary and secondary stages, recently it has been demonstrated in practically all syphilides. Lymphangitis, adenitis, the blood, gummata and other tertiary infiltrations have yielded positive findings. They can also be recovered from practically the entire body of congenitally syphilitic infants. In the chancre it lies in the deeper epithelial layer, the lymph spaces and the walls of the

blood-vessels. Treatment, however, both constitutional and local, cause it to rapidly disappear from accessible locations.

To examine a chancre for their presence it is necessary to first cleanse the lesion with sterile gauze moistened with normal saline solution to remove the spirochæte refringens, epithelial debris and tissue detritus. The lesion is then lightly curretted with a sterile scalpel until blood-stained serum exudes in much the same manner as in scarification for vaccination. Free bleeding must be avoided, as a large number of erythrocytes would render difficult the detection of the spirochæte in the stained film. A droplet of the serum is then lightly smeared upon a perfectly clean cover glass prepared by cleansing with a mixture of alcohol and ether and highly polished.

Fixing by holding the specimen over the mouth of a bottle containing osmic acid is said to give exceptional definition, particularly of the tapering extremities. In most instances fixation is accomplished by the methyl alcohol used as a solvent for the various stains. The number of stains employed are almost as numerous as the investigators who have studied the organism; of these the Giemsa stain is probably the best.

The ordinary Leischman or Wright's blood-stain will answer in most instances with a slight modification of the usual technique. After adding one or two drops of water to the specimen, previously flooded with the stain, either permit the staining process to continue twenty-four hours, covering with wide-mouthed bottle or jar to prevent evaporation. When time is an important factor, apply heat during the staining for forty-five seconds. Care should be exercised that the alcohol of the stain does not become ignited or the specimen may be burned, and the spirochæte thus become unrecognizable.

By the latter method the organism appears a deep reddish purple, or even black, if the staining be prolonged; the latter, however, is an aid to the beginner. It is also well to wash the specimen thoroughly in a weak alkaline solution ($\frac{1}{20000}$ NaOH) instead of water, as the definition is thus slightly enhanced. The one-twelfth oil-immersion lens, with the brightest illumination possible, is requisite, and a carefully adjusted focus, owing to the extreme thinness of the organism.

In securing a specimen from the eruption, the skin should first be prepared by careful cleansing with soap and water, and afterward wiped with sterile normal saline solution. One method advocated is to exert firm lateral pressure upon the macule or papule, preferably by using a long bladed forcep, or with the fingers. This will finally cause an exudate of thin serum containing a few erythrocytes, from which smears are prepared. The syphilide may also be scarified with a knife in the manner above described. More satisfactory, however, is the production of a small blister, if there is an absence of the vesicular syphilide. Leverditi and Petresco have demonstrated that the spirochæte passed into blisters made artificially on secondary syphilitic lesions; also into blisters produced on sound skin in the vicinity of secondary cutaneous lesions.

The method, a pledget of cotton saturated with the strongest ammonia water, is applied over the cleansed skin and covered with oiled silk and a

strip of adhesive plaster. At the end of a half hour a blister will have formed; then with a short piece of ⅛-inch glass tube, drawn to a capillary point, previously sterilized, the vesicle is pricked and the contained serum drawn into the tube by capillarity. Smears are then made upon clean cover glasses.

To examine the blood for the presence of the organisms, the method of Noeggerath and Staehelin is preferred; one cubic centimeter of blood is mixed with 10 cubic centimeters of a 3-per-cent. solution of acetic acid. The mixture is then centrifugalized, and smears made from the sediment.

The spirochæte pallida is probably one of a group of similar organisms, hence care must be exercised to exclude the others, particularly the spirochæte refringens, which is found in localities from whence the spirochæte pallida is sought. Such localities are the chancre, venereal warts, smegma, the tonsils and ulcers generally. Its chief distinguishing features are: larger size, thicker, quite readily and deeply stained, and decidedly characteristic are the wavy undulating spirals rather than the corkscrew form of the pallida. Moreover, the ends are usually blunt, and it is found in far greater numbers than the treponema pallidum.

That diagnosis by finding the spirochæte pallida in the stained specimen is difficult even for the expert, was emphasized strongly by Hoffman. It is a common experience to find but one or two in the entire smear. Finally the stained specimen differs from the living organism, in that they are much less numerous than when the same material is examined in the fresh state; secondly, the staining causes the organism to lose the typical acute winding of the spirals; thirdly, the absence of motility is of decided disadvantage.

The most satisfactory method of demonstrating the organism in the living state is by means of the so-called dark ground illuminator. Of these the type manufactured by Reichert is the most satisfactory, although Siedentopf's condenser has been successfully used.

The Reichert instrument consists of a metal plate, which is clamped on the stage of the microscope. Attached to the plate above is a thick glass slide with a tapering hole through its center. The surface of the conical aperture is silvered, hence acts as a mirror reflector. By means of a revolving disk, circular metal plates of various sizes are interposed between the rays from the plane mirror of the microscope below and the conical mirror reflector above, hence only the marginal rays strike the conical mirror. These rays are in consequence reflected and converge at a point 1 millimeter above the surface of the glass slide. Therefore, any opaque body at this point will intercept these rays, and appear as a bright reflactile body on a dark background. The most satisfactory light for use with the instrument is either the sun's rays, the Welsbach or an arc light.

The specimen is prepared for examination by placing a drop of the serum obtained from the lesion in the usual manner upon a clean cover glass. This is laid upon a clean, well-polished slide, not over 1 millimeter in thickness, and allowed to spread in a thin layer between the two glass surfaces. Obviously, an excess of erythrocytes would obscure the observa-

tion. It is also of particular importance to use slides free from scratches or smokiness, as these interfere with the dark ground effect. The 1/12 oil-immersion lens is most commonly used, although a 1/8-inch objective has been successfully used by some.[1] One sees in the field bacteria, erythrocytes, leucocytes and the spirochæte actively rotating on its long axis in either direction without much change of position, or moving steadily about the field, or at times displaying a spasmodic lateral bending motion. The motility is rarely observed for a period longer than one hour. Other varieties of spirochæte that may be present are much more rapid in their movements than the pallida. Some observers have claimed to have seen the organisms within the red and white blood corpuscles; this, however, is a disputed question. As high as eighty have been observed in a single field; a few days' treatment, however, either constitutional or by mercurial local applications, renders it almost impossible to find more than two or three organisms. It can be stated as a general law that the more succulent the lesion the greater the number of spirochæte. The clinical significance of the spirochæte of Schaudinn and Hoffman, it has been argued by most syphilographers of to-day, is that the specificity of the organism is "a probability bordering on certainty." Although cultivation of this organism has thus far been unsuccessful, and hence the inoculation of it in pure culture, leaving Koch's third and fourth postulates unfulfilled, we are, however, obliged to accept the treponema as the specific cause of lues. The following are the facts upon which the above assumption is made:—

First.—It has been found in all stages and all lesions of acquired syphilis, and in the most contagious lesions as the chancre, condylomata and mucous patch in the greatest number. It occurs in the blood, exanthemata and viscera of hereditary syphilis; also in the placenta and umbilical cord. It has been a frequent, although not an absolutely constant finding, in the experimental syphilis of apes.

Second.—It has never been found except in syphilis.

Third.—The manner of grouping of the spirochæte in the various lesions accords with the facts of the pathology of the disease.

Fourth.—Mercury is uniformly successful in promoting its rapid disappearance from the lesions.

Additionally, the organism does not pass through a Ton filter. A similar observation of Metchnikoff and Klingenmüller, that the filter is impermeable to syphilitic virus, is striking.

The organism, therefore, apparently bears the same relation to syphilis that the tubercle bacillus does to tuberculosis, or the gonococcus to gonorrhœa. We are thus justified in accepting a positive microscopic finding as furnishing a postive diagnosis of the disease, and in instituting treatment at once. Moreover, as in the case of supposed tubercular sputum, a single negative result is not accepted as final, but recourse must be had to repeated examinations. If these be uniformly negative, we can then state with confi-

[1] Harris and Corbus: Journal of the American Medical Association, Dec. 5, 1908.

dence that the sore is not luetic. Ravogli and others have advanced progressive views on the pathology of this affection. It being claimed that hardening of the chancre is due to the effort of the organism to agglutinate the spirochæte in order that they may remain encapsulated in situ and finally be disposed of. Hence, the greater the local reaction the more effective in impeding the progress of the organisms into the economy.

The old teaching that the virus traveled by the way of the various lymphatic chains to invade the organism is now refuted, for there are cases of malignant syphilis in which the rapid infection can be traced to the spreading of the virus through the blood-vessels. A series of cases have been reported in which chancres of exceptional hardness, accompanied with œdema and paraphimosis, have necessitated circumcision, in consequence of which secondary symptoms appeared as late as two or three months. It appears clearly established that the swelling of the lymphatic glands is due to their action in opposing the invasion of the spirochæte, hence termed by Hallopeau le ganglion barrière. It has been observed that in those cases where the glands are little, or not at all involved, that syphilis usually takes a severe course. Indurated swollen glands, due to tuberculosis or mixed infection, often constitute a complication.

The eruption symptoms of syphilis beginning with the chancre and ending with the gumma are the result of the local multiplication of the organisms. The reaction caused by its presence in the various tissues produces the skin symptoms observed in syphilitic subjects. Gaston is of the opinion that the difference between the symptoms of the primary, secondary and tertiary stage is due to the different local action of the treponema in consequence of modification in its habits and growth. Hence the modified organism as present in the tertiary lesions is capable of taking on its original activity when inoculated into a healthy individual. The experiments of Finger on the inoculability of tertiary lesions prove this premise.

It is also possible for the spirochæte to enter the system by way of the interstices of the tissues; this is promoted by a debilitated state of the patient in which there is a lack of power to produce antibodies, and thus impede the progress of the invader. It is the primary entrance of the spirochæte and its toxin into the circulation that causes the reaction expressed as syphilitic fever. The roseolar eruption which follows may be considered as the effort of the organism to dispose of the treponema. After the first eruption the organisms reveal a tendency to localize themselves in preferred areas, *i.e.*, in places which furnish the most suitable environment for their development. It is the action of other microörganisms with the spirochæte which causes the pustular and ulcerative lesions to appear. Any locality subjected to repeated irritation is favorable for the invasion and development of the treponema in that site. The well known prevalence of mucous patches in the mouths of smokers is a notable example. Malignant syphilis is due to the lack of development of antibodies in an individual suffering from tuberculosis, alcoholism of poor hygiene, in consequence of which the opsonic index is lowered and the individual left to the mercy of the invading bacteria

and spirochæte. It is not, therefore, the particular virulence of the spirochæte which is the cause of malignancy, but the condition of the system of the newly-infected individual. It is thus justly claimed for cases presenting an initial lesion with marked induration that the latter can be accepted as evidence of a strong resisting power on the part of the individual. Namely, that the spirochæte being surrounded by leucocytes and connective tissue cells in an effort at encapsulation, the formation of antibodies is promoted, and the individual thus safeguarded. Hence, with suitable local treatment to insure the destruction of the organism in the initial lesion and constitutional treatment to destroy the few spirochætes as yet at large in the system, the disease should be much more promptly eradicated. On the other hand, an unnoticed mild primary sore permits the treponema to gain access to the circulation with decided and stubborn secondary symptoms as a consequence.

Original Articles

MEDICO-LEGAL.

By E. S. McKEE, M.D.,
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CINCINNATI.

Ancient Laws Regulating the Study of Medicine.

Dr. A. G. Drury, of Cincinnati, in his interesting book, "Dante—Physician," just out, says: "In the thirteenth century the Emperor Frederick II issued an edict, in virtue of which no one could practice medicine in the Kingdom of Naples who had not been examined and created a master of the College of Salerno. To effect this he must study logic three years, and medicine, including surgery, five years. The student was examined publicly on the 'Therapeutics of Galen,' the first book of Avicenna, and the 'Aphorisms of Hippocrates.' His diploma was to be confirmed by an officer of the Senate, and he was obliged to continue a year longer under an experienced physician. He who wished to practice surgery only was obliged to follow the teachings of the faculty for one year only, but he must devote himself to the study of anatomy above all. Aristotelian philosophy was, in Italy, studied largely as constituting the scientific basis of medicine. It is the special glory of the Bolognese Medical School that it was the earliest real home of anatomical inquiry. Dissection was practiced at Bologna at least as early as the time of Thaddeus. This was one of the first schools at which the old religious prejudice against dissection succumbed to the advance of scientific progress."

The Criminal Insane.

Judge Morschauser, of the New York Supreme Court, is a young man and a new man on the bench, but he is entitled to the thanks of all orderly and well-disposed citizens in his recent decision in the Thaw case. It would have been a menace to the public safety and a heavy blow to the best interests of the people to have allowed Thaw his liberty. The following is Judge Morshauser's decision, taken from the New York Medico-Legal Journal:—

"In construing this statute it should be born in mind that the safety and welfare of the community are of more importance than the freedom of the individual.

"Bearing in mind that the usual punishment for the act which led up to the detention of said Thaw is death or a long term of imprisonment, and that Thaw escaped the consequence of such act solely by reason of his existing mental condition, I do not deem it proper to allow Thaw his freedom, suffering as he is from some form of insanity, with the possible recurrence of an attack similar to that which the jury believe he was suffering when he killed Stanford White.

"In view of the existing mental condition of said Thaw, the safety of the public is better insured by his remaining in custody and under observance until such time as he has recovered, or until it shall be reasonably certain that there is no danger of a recurring attack of the delusion, or whatever it may be."

Permission to Use Patient's Arm in Demonstrating Testimony Upheld.

The Supreme Court of Montana, in the personal injury case of Stevens *vs.* Elliott, the physician who attended the plaintiff at the time of his injury and for some time afterwards was permitted by the Trial Court, over the objection of the defendant, to make use of the plaintiff's arm to demonstrate or explain his testimony. The reason given for the objection was that the testimony already given by the plaintiff was to the effect that other physicians had operated on the injured arm after this one had ceased to give it his care and before the trial, but, conceding this to be true, the Court wholly failed to see how it could affect the testimony of the physician, in so far as his conclusions were based on facts obtained by him at the time of the injury, or why he could not, by the use of the injured arm, make his testimony all the more easily understood by the jury. Such an inspection of the injured limb in the presence of the jury is usually permitted. At least the application to make such inspection is addressed to the sound legal discretion of the Trial Court, and its ruling will not be disturbed, except for manifest abuse of such discretion. The Court failed to see wherein the Trial Court abused its discretion in this case.

Damages Occurring During the Doctor's Absence.

In the light of recent events it may be of interest to recall a decision on this subject. Judge William H. Taft, when on the United States Circuit

Court for the Southern District of Ohio, decided the following case: A patient had been under the care of an oculist who was treating her eye. He made an operation and continued his treatment till he was called out of the city. He gave notice of his intended departure, and left word with his patients that another reputable physician would look after his patients while he was away. There was some conflict in the testimony as to whether the patient went to this other physician, but Judge Taft held that, under the circumstances, he having given notice and provided for the necessary treatment of his patients, absolved him from all liability, and the case was taken from the jury and a judgment entered in favor of the physician.

Maceration of the Fœtus Medico-Legally Considered.

Pisane (Annali di Obstetricia e Ginecologia) tabulates the results which he has attained in a study of sixteen fœtuses with reference to the reliable signs of maceration and the length of time since death has occurred. He states that the fœtus is very flaccid, all the serous cavities are filled with imbibed fluid, the bones of the cranium are loose and flap about, and all the tissues and organs have imbibed blood pigments. The endothelium of the blood-vessels becomes softened and detached, and the blood pigment passes out into the tissues. He finds that the amount of coloration varies with the length of time since death, increasing gradually. This pigmentation is of scientific importance, and may be used for diagnosis if properly limited, but used too widely, it may lead to mistakes.

Pitying the Pitted.

At the annual dinner of the Association of Public Vaccinators of London, Sir James Chrichton-Brown created considerable interest by relating the following, which he said was the only instance in history known to him in which small-pox did any real good. It was the case recorded by Oliver Goldsmith, "The Double Transformation":—

> No more presuming on her sway,
> She learns good nature every day;
> Serenely gay and strict in duty,
> Jack finds his wife a perfect beauty.

In the above instance small-pox was instrumental in restoring matrimonial felicity. Sir James went on to relate that a frivolous coquette, negligent of her studious husband, devoted to the enchantment of her own personal charms, aided by the arts and artifices of the toilet, was seized by that dire disease whose ruthless power withers transient beauty's charms, and she came out of it with a face pitted, and seamed, and scarred, and unlovely, but with a spirit chastened and subdued. A lady beauty specialist in London has recently been fined 500 pounds for serious facial disfigurements and suffering, which attended "harmless methods" of removing small-pox pitting; the jury also found her guilty of fraud.

The Law Protecting Children.

Three cases reported in a single day from three different police courts, all appearing in one paper, the Daily Telegraph of London, shows the great interest taken in the laws for the protection of children and their enforcement. The amelioration of the lot of children in recent years, through legal interference, is very marked. The use of children on the streets as beggars to assist grown-up mendicants in exciting passion and extracting alms from passersby is a practice of varying degrees of physical suffering, but always demoralizing. It is certainly a crime to raise up mendicants or teach children to become such.

Damages for Cocaine Poisoning After "Painless" Extracting of Teeth.

The case has appeared recently in the English courts where an unqualified assistant administered cocaine by hypodermic injection in "painless extracting" of teeth. It was shown by the testimony that the solution of cocaine had been poured out into a glass and then injected. The patient soon came under the care of a medical man who found him as near death as could be. Said medical man produced tubes, which he said was the proper way to administer cocaine. Parke Davis & Co.'s London chemist was called to testify. The Judge found that the cocaine was negligently administered and gave judgment for 10 guineas.

Syphilis Communicated by Assault and Battery.

Watson (New York Medical Journal) reports three cases of syphilis contracted in this way. The initial lesion was situated on the dorsal surface of the hand in one case, on the ear in another, and on the scalp in the third. The source of infection was from a blow of the fist in two cases, and a bite from the assailant in the other. Other cases of like character are cited in the paper. Comparatively little attention has been called to assault and battery as a possible cause of syphilis, though much has been written upon syphilis extra-genitally acquired. It would be interesting to hear from the profession on this unusual method of acquiring syphilis, as well as other interesting methods.

BALDNESS.

By M. L. RAVITCH, M.D.,
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Shakespeare, touching upon the subject of baldness, does not give much hope to the bald-headed. In his "Comedy of Errors," Act II, Scene 2, you find the following discourse:—

Dro. S.—There's no time for a man to recover his hair that grows bald by nature.

Ant. S.—May he not do it by fine or recovery?

Dro. S.—Yes, to pay fine for a periwig, and recover the lost hair of another man.

Shakespeare seemed to lay stress on intellectual development or too much brain work as the cause of baldness, when we read the following lines:—

Ant. S.—Why is time such a niggard of hair being as it is so plentiful an excrement?

Dro. S.—Because it is a blessing that he bestows on beasts: and what he has scanted men in hair he has given them in wit.

Ant. S.—Why, but there's many a man has more hair than wit?

Dro. S.—Not a man of those, but he has the wit to lose his hair.

That civilization and learning were the cause of baldness seems to be the opinion of even ancient writers. Æsculapius, the God of Medicine, and Hippocrates, the Father of Medicine, were represented as bald-headed individuals. So were the famous Greek poets, Aristophanes and the noted sculptor, Phidias. This, I mean baldness, would have become a fad, an external sign of intellectuality, were it not for the tragic end of the great tragedian, Æschylus, who, according to Leonard, in 456 B. C., came to his end by the blundering of an eagle which mistook the top of his bald head for a rock, and so dashed its prey, a turtle, upon it, in order to break its hard concealment, so that it could be eaten. It is needless to say what the result was to the man and the undoubted surprise of the eagle.

The Hebrews were more practical and more scientific. They looked upon baldness as a scourge or parasitic disease. Isaiah intimated that baldness was apt to be classed with parasitic diseases. Censuring the daughters of Zion for their iniquity, he said that, instead of well set hair, baldness "was to come upon them and a scab upon the crown of their heads." (Isaiah iii: 16-24.)

Pincus has been looked upon as the greatest authority on diseases of the hair. According to Pincus, alopecia is due to two causes, hereditary and parasitic. Alopecia in many cases, says Pincus, is hereditary, it being not uncommon to meet with families in which the fathers and sons for many generations lose their hair early in life. He even adds this is due to a markedly stretched condition of the aponeurosis of the occipito-frontalis muscle which becomes hereditary in certain families. If this be the case, why then don't the daughters become bald-headed as their brothers do? Such a hereditary explanation is not borne out by facts. Since authorities lay stress upon bad health as the cause of baldness, bad health will undoubtedly cause diseased hair, but bad health will also affect other organs.

Baldness as the result of bad health is purely due to a nutritive trouble, the bulbs being badly nourished, the hair becoming loose and falling out. Neurotic troubles and nervous shocks are also liable to cause loss of hair, or even total alopecia. But we must grant that in most cases of baldness we meet, the general health is usually good. Whether in church, or theatre, or other public places, look at the bald-headed sons of Adam, and you will

usually find them well-fed, robust and a jolly lot of individuals. Comparatively very few are in bad health. To my mind, Sabouraud's theory, in regard to baldness, is the most plausible one. He maintains that the essential factor in all cases of baldness is the micro-bacillus of seborrhœa, which he demonstrated in 1897.

Lassar and Bishop, several years ago, have asserted their opinions on experiments with animals, that alopecia prematura (premature baldness) could be caused by contagion.

Hebra and Kaposi always maintained that a chronic seborrhœa (dandruff) is the primary condition, and that alopecia or baldness occurs only secondarily. It is a fact that many scalp diseases, which have been attributed to certain constitutional diseases, have lately been found to be of microbic origin. Sabouraud says that before he demonstrated his micro-bacillus in 1897, neither he nor any one else "had the idea that calvities could be of a micro-bacillus origin." Prior to Sabouraud, Unna has demonstrated that in alopecia, due to seborrhœa, he found an organism—bottle-shaped—and he called it bottle bacillus. In my own experience over 90 per cent. of baldness is due to dermatitis seborrhœicum, in which the micro-bacillus of Sabouraud, or bottle bacillus of Unna, can be found. Under the term of dermatitis seborrhœicum (inflammatory process of the skin) we may include different phases, such as eczema, seborrhœicum, pityriasis capitis, alopecia pitorodes, seborrhœa sicca, going on to a distinct seborrhœic baldness. G. Elliott, of New York, was the first American dermatologist who worked along the line of Sabouraud and Unna. In his paper, read before the American Dermatological Association in 1892, and published in the New York Medical Journal, February, 1893, he pointed out that out of 234 cases of premature baldness, 216, or 90 per cent., were due to purely local process of the scalp, and all of 216 cases presented the clinical appearances of eczema seborrhœicum. He furthermore believes this to be an infectious inflammatory process. Jackson, in a clinical study of 300 private cases, almost coincides with Elliott. He gave the percentage of parasiticism at 75.

From all the inquiries made by me in regard to the cause of premature baldness, I can only see that it is an infectious process causing several clinical phenomena, which we include under the term of eczema seborrhœicum of Unna, or, better still, dermatitis seborrhœicum of Crocker. No matter how, whether the term is properly used or not, or what organism is the specific cause, whether it be the micro-coccus of Unna or micro-bacillus of Sabouraud, we know from the pathological and clinical appearance of the disease that it is an infectious disease. The process of infection and the subsequent damage done to the hair by the micro-bacillus of Sabouraud or micro-coccus of Unna, is differently described by both investigators; but I am inclined to lean toward Sabouraud's theory, which is excellently described by Crocker: "The specific micro-bacillus invades the follicle by the follicular orifice, it multiplies and forms a thin lamina made up of microbes which separate the hair-shaft from the wall of the follicle and descends almost to the level of the orifice of the sebaceous duct."

"The epithelial irritation excited in the neighborhood produces horny layers which encyst the microbian colony and form what Sabouraud calls a cocoon, which is attached to one side of the hair-shaft. The consequences of its presence manifest themselves in sebaceous hypersecretion, followed by glandular hypertrophy to three or four times the normal size, and progressive atrophy of the hair papilla. Lymphocytes and giant cells in small quantity are found around the microbian utericle, round the neighboring vessels, in the angle of the arrector pili and shaft, and round the base of the follicle and the papilla. The functions of the latter are interfered with; the pigment is no longer conveyed to the hair-cells; the medullary cells of the shaft are no longer produced; the diameter of the shaft is diminished, and hence the adult characters of the hair are lost, and the new hair have neither pigment nor medulla; finally, even this weak substitute is not produced, hair production ceasing altogether and the papilla itself disappearing."

From all the foregoing we can readily see that most cases of baldness are of parasitic nature. Taking this in consideration, we ought to realize how dangerous a comb or brush would be when used even by several members of a family, but how much more so when used on the many in a barber shop or hair-dressers' establishment. To carry out these facts, culture tubes were inoculated with the debris from a barber's comb and brush, with the result that the usual organisms found in the scalp were alive in these articles. Every dermatologist will tell you that he has often cured a case of dermatitis seborrhœicum, to have it relapse after the patient visits the barber. I would forgive a layman, because he is ignorant of such facts, but I would hardly forgive a physician when he promiscously lets his barber treat his scalp with the vilest kinds of shampoos or vilest smelling hair tonics.

With the multiplication of beauty shops in our cities and with the adoption of all kinds of combs, rats and switches (the last two articles the best dirt and germ catchers), and other contraptions for holding up their hair, the women are also becoming as bald as men. In my 50 cases of premature falling out of the hair in women, 38 cases were traced to infection by wearing rats and switches. Only six of my female patients have abandoned wearing those abominable disease-producing rats and switches. The improvement in the hair was remarkably rapid. The rest of them would not give up wearing rats (will a woman ever give up anything pretaining to fashion?), and their improvement was rather slow.

In conclusion, I would like to add that all attempts of exploding new theories in regard to baldness, such as wearing of hats, lack of exercise, lack of deep breathing by some persons, thereby producing poisonous air in the lungs, all such theories are simply a comfort to those who explode them. Though there is no doubt that the majority of cases of baldness is due primarily to infection, yet we must not neglect our health, as a person with bad health, or "run down" system (as it is often expressed), is easier predisposed to infection than a healthy person. "While our civilization," says Shoemaker, "compels us to be mindful of the use of cleanliness for the hair, we must not be oblivious of its demand for air and light. The hair being a

vital structure, needs, like the body elsewhere, light, air and cleanliness. It especially needs attention to them in the midst of our artifical life and civilization; for, in a state of nature, the hair obtains the first two so plentifully that it can afford to dispense largely with the last."

Editorial

ADVANTAGES AND DISADVANTAGES OF DANCING.

THE pleasures of love, affection, mutual regard, sympathy or sociability, make up the foremost satisfaction of human life, and as such are a standing object of fruition, pursuit and desire. One of the most common pleasures at the present time is dancing. It is indeed a pleasure and is one of the primitive arts. The rudest savages practiced it and made it an essential element in every religious observance and in every festival. The dances seem to have been suggested by mere pleasure and the desire produced by it. There is no account of the origin of dancing, but combined with music it is practiced by every nation on the globe, and the foundations of it lie in the human constitution itself.

The Greeks, whose civilization aimed for a harmonious development of the mind and body, considered dancing as a necessary part of education. To them a great dancer was a great man. If we trace dancing back we find that it originated with the origin of man. These dances were indicative of the habits and temperament of the people.

Sociability seems to have been the potent factor for the maintenance of the dances. Whenever the people assembled dancing naturally took place. In the presence of an assembly the individuals were aroused, agitated, swayed, and the thrill of numbers appears to be electric and the tendency to dance was irresistible. Dancing may seem to us a slight matter and therefore we are less likely to subject it to a close investigation.

It is an established fact that dancing is an art. It is a regular arrangement of motion, grace and music, and therefore it should appeal to the sense of beauty. However, many people, in spite of its artistic qualities, regard it simply as a social accomplishment and scornfully deny its claims to be an art. If we analyze this common pleasure into its component parts, we will find that it consists of rhythmical movements of the body, succeeded by successive shiftings of the body centre of gravity in obedience to the musical tones.

It is a well-established fact that a sound mind must be in a sound body. No argument is needed nowadays to prove the correlation of the mind and body, and if we interpret it correctly we find such is the case in all the pleasures of which dancing is a prominent factor. We find that the most trifling amusement is some indication of the mental state, and it is attributed to this fact that dancing originated. As time passed on people have broken loose from the ancient traditions. Countless new avenues have opened out before us, and a

host of dormant energies which have sprung up into life have brought with them new tastes and new desires. Progress, in fact, has assumed the proportions of a revolution and its effects have been profound and far-reaching.

Very little progress, however, has been made in dancing, and it seems to be the most extensive and least involved of all emotional influences at work in education and development. As the writer has stated above, that dancing necessitates a feeling of rhythm, it would naturally and instinctively induce one to regulate his footsteps to a certain order and in this manner cultivate a stronger instinct for rhythm and harmonious activity of the body. Rhythm is the fundamental principle of life and every organ in our body works rhythmically—such as is seen in the contractions and dilatations of the heart, the balance of equilibrium in metabolism, etc.

The ancient Greeks understood the significance of these things better, and in their estimation the body and mind were unity, and therefore it was necessary that they be developed as one.

To condemn dancing, we must show that it is ill-adapted to view and that it indirectly interferes with a reasonable scheme of intercourse. As every story has two sides—a good and a bad—so is the case with dancing. If we look at the beneficial effects of dancing we find that it is a very valuable aid for many people, since it enables them to acquire muscular control and dexterity. It enables them to take exercise, which for different reasons they are unable to engage elsewhere. If it were not for the pleasure that they experience they would never take this form of exercise; for the ordinary conditions of their life do not permit daily exercise. After the dance is overy they feel more invigorated, the bodily functions are stimulated. The people come out happier, because of the healthful-blooded rhythm that still pulsates through their bodies, for it means that they have a new feeling about life. Dancing furnishes to them an outlet for their pent-up feelings and impulses in rhythm of artistic grace. It furnishes amusement and pleasure which is a part of our life and is one of the things worth living for.

It is claimed by many that dancing restores motor elements of expression and in this manner develops the muscles and motor communications which are prone to atrophy from disuse and inactivity. It also enables the participant of the dances to gain control over his strength and grace of his body. This kind of culture is the most educative of all, because it places the control of the muscles under the will, and the exercises involved are those which tend to establish and improve the enduring powers. It appears very strange to pronounce so common an amusement as dancing, unnatural and harmful, but upon closer inspection we can see its defects.

Looking at dancing as an exercise, the late hours, the heated rooms, exhausted atmosphere, place it most unfavorably in comparison with almost every out-door pastime. Dancing is very harmful to individuals with diseased hearts on account of the overexertion and the increased amount of work on the already over-strained heart. Another great objection is the sexual feeling which it encourages by stimulating the desire already under insufficient control, and thus probably destroys the balance of character. J. O. Davis.

Materia Medica and Therapeutics

ALCOHOL IN THE TREATMENT OF NEURALGIA.

Dr. Alexander recommends the great benefits to be derived from injections of alcohol in the treatment of neuralgia. He urges its use on all cases before resorting to operative measures. He states the injections of alcohol will relieve the patient's pain even where it is impossible to remove the constitutional cause, such as in case of brain tumor, while waiting for the exact diagnosis. He thinks that it is important to practice on the anatomic studies and on the cadaver before attempting to apply this technic. A patient is reported to have been relieved of pain for a year until the intracranial cause was located. Great caution is required with this technic, he warns, for nerves with a motor element. (Berliner klinische Wochenschrift, November 3, 1908.)

AMMONIUM CARBONATE IN THE TREATMENT OF CORYZA.

Dr. Bevery Robinson recommends very highly this drug in acute coryza. He gives a grain to the dessertspoonful, with some flavoring agent, and repeats this dose every hour for twelve doses. For the next twelve or twenty-four hours he gives the remedy every two or three hours. It is unnecessary to continue this treatment if the attack is not aborted in forty-eight hours. Care must be exercised in not administering too much ammonium carbonate and too frequently, since it occasions unpleasant symptoms of cardiac disability of a temporary nature and also becomes a notable depressant of the circulation. Sometimes the author uses the aromatic spirits of ammonia instead of the ammonium carbonate, in twenty-drop doses every two hours, diluted with water, but it is not so efficacious as the former.

When the ammonium carbonate is used soon enough and in suitable doses, good results have been reaped. In those cases in which it has failed, it is due to its not being used early enough and in accordance with the precise manner indicated. (Medical Fortnightly, January 11, 1909).

ARTERIAL SCLEROSIS, TREATMENT OF.

Dr. Gouget reports favorable results on his views of treating calcareous arteries. Since increased tension is the chief cause of this affection, the usual aim is to do away with this underlying cause. The author recommends the iodides as the most valuable drugs to combat this disease. He prefers potassium iodide better than sodium iodide, since the former is more resolvent than the latter. Of course, no method of treatment can restore arteries which have become calcareous; but in the initial stage the process may be arrested by potassium iodide, and the solvent action of potassium may be combined with the tension-lowering effect of sodium, by giving both salts simultaneously or alternately; 3 to 7 grains of potassium iodide and 50 to 20 grains of sodium iodide may be given in twenty-four hours. They should be administered during meals, two or three times a day, freely diluted with water and combined with some alkali, on account of the tendency of acid drinks to liberate iodine, and so cause gastric disturbance. If the drugs are badly borne, opium or belladonna may be combined with them. Symptomatic treatment must be directed against cardiac, renal and cerebral complications, and, above all, against pain.

For alleviation of the pain, the author recommends morphine and atropine.

The patients should be allowed a mixed diet, except shell-fish, "high" game, smoked or salted fish and meat, pork and such foods which contain toxins which cause vascular constriction and in this manner produce a high tension. The evening meal should be light and the patient is permitted to eat fresh meats, fish, eggs, milk, vegetables, ripe and cooked fruits. He should partake sparingly of food and should not ingest considerable fluids, in order that he may not overload his vascular system. Another important point is that the patient should avoid excesses of all kinds, even intellectual and moral exertions and high living of every description, tobacco, alcohol and lead poisoning being especially injurious to them. (British Medical Journal, October 17, 1908).

BIER'S HYPERÆMIA METHOD IN THE TREATMENT OF INFLAMMATION OF THE GLANDS OF BARTHOLIN.

Dr. Plass notes that inflammation of the glands of Bartholin is generally of gonorrhœal origin and finally terminates in abscess of the gland, followed by infiltration of the surrounding tissues. Since the general, conservative treatment of such inflammation has been unsuccessful, the author has modified the vacuum glass of Bier, so that the rubber tube and ball cannot be infected with the discharge. His method is as follows: The assistant holds the labium majus and the glass is put in place, one to one and a half centimeters in front of the posterior commissure, so that the outlet of the inflammed gland lies in the middle of the opening of the glass. Too great suction with the ball is to be depracated, since the tissues are drawn deeply into the opening and resorption and circulation are thus prevented.

With the patient in bed, the apparatus is applied for 30 minutes, in two sittings. The pain soon passes away, secretion becomes normal, infiltration disappears, and healing results. (Therapeutic Gazette, December 15, 1908).

BURNS, TREATMENT OF.

Dr. Renner recommends a powder and the advisability of applying it in the treatment of burns of all degrees. This powder is made up by one part of subnitrate of bismuth to two parts of kaolin. A thick layer of this powder is placed over the burnt surface after it has been thoroughly cleansed. Over this he bandages a layer of sterilized gauze, the whole being finally covered by thick layers of wadding. This dressing is changed every day so long as there is much discharge, the injured area being submerged in a partial or complete bath, according to the extent and situation of the burn. This powder, the author claims, speedily takes up the fluid from the burnt tissue and converts it into a black and desiccated eschar. This property is due to its very active absorbing power. In burns of a mild degree, the area, after the use of the powder, is covered by a thick crust, which serves as an excellent protection during the growth of the new epidermis. By this treatment, for which are claimed the advantages of simplicity and cheapness, together with the capacity of arresting free secretion and preventing septic infection, pain, it is asserted, is relieved and the temperature is kept down. In some few cases, there has been an urticarial rash with much itching around the burn, but this, the author states, soon disappears after a temporary suspension of the use of the powder. (British Medical Journal, January 2, 1909).

CORYFIN, ITS USE IN COLDS.

Dr. Baumgarten states that coryfin is a new menthol ester which can be used to relieve the unpleasant symptoms of cold. It can be applied to the nose by means of a swab, or else a pledget of wool on which some coryfin has been powdered can be laid within the nose.

Coryfin does not lose its effect after prolonged use. Along with anæsthesin, the author has found it of value in the treatment of tuberculosis of the larynx. (Klin. Therap. Woch., No. 51, 1907).

FRACTURE OF THE PATELLA, TREATMENT OF OLD.

Dr. J. Rolter describes a very advantageous method in operating upon a fractured patella. His patient was a woman aged 37 years, who had fractured her right patella eight years previously. Satisfactory union took place, but some eleven weeks after the accident she met with a second slight accident, and separated the newly-united fragments. Although no union took place after the second accident, she was able to walk fairly well. A year ago she fell and fractured her left patella. The right patella on examination was found to be broken in two at the junction of the upper quarter and lower three quarters. There was an interval of two inches between the fragments. The leg could not be fully extended. The fragments of the left patella lay some 2¼ inches apart, and the upper fragment only measured ½ inch. The function of the left leg was less good than that of the right. She could only extend the leg to half a right angle. She could walk with a stick, but could not walk upstairs.

Dr. Rolter first extended the quadriceps by means of a strip of strapping and weight. On removing it for the operation, he found that the extension produced by the strapping had again disappeared, and that it was impossible to bring the fragments of the left patella together. He, therefore, excised the scar tissue and applied a silver-wire suture to the patella, and found that there was still about one inch of separation. He then dissected a strip of the aponeurosis of the muscle, measuring about 1¾ inches, by nearly 3 inches, leaving an attachment below at the upper fragment. Muscle fibres were intentionally left on the under surface of the aponeurosis strip. This was turned downward in such a way that the muscular surface lay over the patella fragments and it was sutured by numerous catgut sutures to the fragments. (Calcutta Medical Journal, December, 1908).

GELATIN AS AN ANÆSTHETIC AND AS A HÆMOSTATIC.

Dr. L. J. Facio advises the use of daily subcutaneous injections of gelatin—not more than 25 c.c. of a one-per-cent. solution of gelatin—for the arrest of pain. The pain was constantly attenuated by the first injection and disappeared completely after the second or third. With an aneurysm the effect is more marked than that of morphine. However, the effect was less pronounced than that of morphine in pleurisy, articular pains, progressive paralysis, etc., but the effect lasted longer. There are no by-effects of any consequence observed in his experience, and the local pain is slight when these small amounts are injected. The anæsthetic action occurs promptly and lasts for twenty-four hours at least, and sometimes for three days, or even longer.

Dr. Chaput highly advocates the use of gelatin as a hæmostatic. Instead of opening the wound again in case of severe secondary hæmorrhage, he raises

the part, raising the foot of the bed 30 cm., after a laparotomy, covers the region with an ice bag, injects physiologic saline solution under the skin or into a vein, and then injects into the thigh 500 grammes of a one-per-cent. solution of gelatin. If the hæmorrhage recurs, the wound must be opened, the clots removed, and the oozing vessels ligated, after the hæmorrhage has been arrested by repeating the above measures. The author relates a number of examples to show the remarkable benefit from this method. (Journal of the American Medical Association, January 9, 1909).

HIGH-FREQUENCY CURRENTS IN TABES DORSALIS.

Dr. Nagelschmidt reports the good results obtained from the treatment of tabes dorsalis by electricity. He gives the details of twenty-four cases in which the patients were treated by application of the high-frequency current, with improvement in the subjective symptoms, although the objective were not materially modified. He is convinced that these results can not be attributed to suggestion, as the pains in tabes are usually influenced by suggestion, even in hypnosis. Some of the patients had been addicted to morphine. The ataxia was improved only in cases in which the electricity was used as an adjuvant to the Frenkel exercise therapy. Under these conditions the improvement far surpassed anything observed without it. Incontinence was cured in the five cases in which it existed and the sexual function restored in nearly every instance. (Münchener med. Woch., December 8, 1908).

HOT IODIN LAVAGE OF THE INFECTED PUERPERAL UTERUS.

Dr. Ortali discusses this method of treatment and highly commends it. The vagina is disinfected, dilated and the uterus lightly curetted to remove all retained clots, after which the uterus is flushed with from 100 to 500 gm. of a mixture of equal parts of tincture of iodine and hot water, allowing free escape to the fluid. After a few minutes, or at the first complaint by the patient, the uterus is rinsed out with plain boiled water to remove any excess of iodin. It is not necessary to tampoon the uterus or the vagina. The author has applied this process in three cases (Mergari's method of treating puerperal infection) and he is highly satisfied with his results. He states that the normal conditions are restored in the uterus in a very short time. (Gazetta degli Ospedali e della Cliniche, Milan, November 22).

HYPERÆMIA TREATMENT IN GYNECOLOGY.

Dr. A. Stein, New York, discusses the treatment of gynecologic and obstetric conditions by the artificial induction of local hyperæmia. He states the good results obtained from the use of the hot-air method. It is applicable in chronic inflamed adnexa, pelvic exudates, chronic parametritis and perimetritis, contracted painful scars, and fixed malpositions of the uterus and adnexa when resulting from inflammatory processes. It is contraindicated when there is fever, in pregnancy, in hæmorrhage not of ovarian origin, in menstruation and hæmorrhagic endometritis, and in advanced pulmonary and cardiac diseases. The hot air method is very valuable in diagnosing pus foci, since the presence of pus foci causes a rise in the temperature after the first hot air treatment. It is then advisable to discontinue the treatment and bring about the absorption of the pus by other means before continuing it again. For practical purposes, the easiest way to

give hot air treatment in private practice is by means of the ordinary semicircular cradle, made air-tight by covering it with blankets, and carrying the hot air to it by a small funnel-shaped, sheet-iron chimney, or colored electric light bulbs may be used inside the cradle. The hot air treatment causes an active local hyperæmia and stimulates metabolism, relieving pain and causing absorption or breaking down of exudates. Perspiration is caused, cooling the skin and allowing high temperatures to be employed. The treatment begins, in fact, only when the temperature has reached 80 or 100° C. (176 to 212° F.). The first treatment should not be over 25 or 30 minutes; later, if the patient's condition favors it, it may last 60 minutes. It must be remembered that advanced pulmonary or heart disease contraindicates its use. The author also speaks of the weighting treatment in combination with the hot-air treatment, and recommends it highly to the general practitioner, since it does not require any complicated appliances. He has also found that dry cupping increases the flow of milk and is very useful in the treatment of puerperal mastitis, since it allays pain and inflammatory symptoms at once. The incisions need only be small ones if pus has formed, and the shape and function of the breast can be preserved. In conclusion, he speaks of the importance of attention to the general condition of the patient as an essential in any use of the treatment by artificial hyperæmia. (Journal of the American Medical Association, January 23.)

HYPERTROPHIED PROSTATE, TREATMENT OF.

Dr. Hilderbrandt maintains that enlargement of the prostate is amenable to simple hygienic and dietetic measures. He thinks that the hypertrophy is a tumor growth and, therefore, the causes which promote the enlargement should be avoided. The patient should not ingest large quantities of water or drink any alcoholic beverage, and he should avoid chills and long journeys. However, the patient should take light food, mild exercise, warm baths and rubs as often as he can and he should keep his abdomen constantly warm. The patient should urinate at the least desire, walking about a little if urination is difficult. Hot sitz baths will frequently bring the urine when all other means have failed. He regards regular aseptic catheterization as the normal method of treating hypertrophy of the prostate, operating only when this proves impracticable, and then removing the entire gland. If the patient is unable to stand this, he does a cystotomy. (Thera. Monatshefte, Berlin, December 22, No. 12, pp. 605, 678).

INJECTIONS OF SALT SOLUTION IN SCIATICA.

Dr. D'Orsay Hecht reports the surprisingly good results in controlling pain by the use of injections of salt solution in sciatica. After reviewing the literature of alcoholic injections in these cases, he concludes that they are unsuited and shows the advantages and results of his method. He injects a considerable quantity of salt solution into the sciatic nerve at one or more points in its course, after it leaves the great sacro-sciatic foramen. He has not met with any accidents, and in conclusion he comments as follows: "(1) The deep infiltrating perineural injections palliate the pain of sciatica. (2) The acute, subacute and chronic types of sciatica lend themselves to this treatment, and, whereas, the number of injections required varies, immediate notable relief is afforded by the

first injection in nearly all cases. (3) The treatment is most indicated and effective in the non-symptomatic cases, but is also of value in the symptomatic variety. (4) Normal salt solution of varying temperature and quantity, or the betaeucain solution of Lange, is to be preferred to other anæsthetic or mordant solutions. Alcohol is harmful and contraindicated. (5) The sciatic nerve may be reached deep in the ischiotrochanteric hollow (its peroneal branch lower down at the capitellum fibulæ), but it is more surely and safely reached directly after its emergence from the notch. (6) The point for puncture and penetration to the nerve is best determined by drawing a line between the postero-external border of the great trochanter and the sacro-coccygeal joint at the junction of the inner third and outer two-thirds of this line is the spine of the ischium. A thumb's breadth to the outer side of this spine lies the sciatic nerve. Cadaver experiment and clinical experience lead me to endorse this landmark above all others. (7) The method requires a syringe (preferably metal) with a capacity for from 30 to 60 c.c. or more, a needle of desirable length (8 to 12 cm.) directly attachable to the syringe. (8) Accidents of any consequence almost never occur. Unpleasant effects and complications are few and insignificant. (9) The prognosis in the sense of a cure is good if the facts suffice—namely, that in the large number of cases observed for from one to four years many patients have been entirely free from pain during that long interval. Improvement is common. Recurrences are not the rule, and failures are the exceptions." (Journal of the American Medical Association, February, 6, 1909.)

KELOIDS, INJECTIONS OF FIBROLYSIN IN THE TREATMENT OF.

Dr. R. E. Brennan reports a case in which a keloid developed in a patient as the result of a burn. The patient, aged sixteen, while masquerading, was terribly burned about the face. He was taken to the Flower Hospital for treatment, and was dismissed cured, two months later. Later he was brought to Dr. Bodine's clinic for the removal of the tissue that had formed from the burn. A diagnosis of keloid was made, and injections of fibrolysin recommended.

The injection is made into the tumor itself with an ordinary Pravaz syringe. The injections can be made as often as necessary. In this case one was made each week until twenty-four had been given, with the following result: The keloid tissue sloughed, broke down and ulcerated, and what remained was absorbed. The injections given in this case were quite painful.

The author heartily recommends fibrolysin for the removal of cicatrical tissue.

European confrères have also reported brilliant results from its use in traumatic stricture of the œsophagus when the injection is made subcutaneously. (New York Polyclinic Journal, November, 1908).

ISOPRAL IN CARDIAC AFFECTIONS.

Dr. Peters states that this drug is of great value in patients suffering from the various forms of cardiac disease. In referring to the literature on the subject, he finds that certain clinicians have expressed the opinion that isopral is endowed with a toxic effect on the heart. This he denies. Actual reports of cases in which isopral is supposed to have undesirable actions on the circulatory system are few, and most of these, he thinks, can be explained without diffi-

culty. The symptoms complained of were in all cases symptoms which could readily arise in the course of the disease which was being treated, and he therefore objects to assigning the cause to the drug which was given. He has given isopral in a number of cardiac patients, and has not met with any toxic effects either on the cardiac nerves, or on the vascular system, or on the blood pressure. The heart itself is not attacked by this drug, nor have any deleterious effects been noticed in any of his patients during the exhibition of the drug. In cases in which salicylate of sodium was not well tolerated, he obtained a good pain-relieving action from isopral. He therefore recommends isopral as a safe hypnotic, which can be given even in advanced heart disease. (Deut. med. Woch., October 29, 1908).

LIQUOR HYDRARGYRI PERCHLORIDI IN TREATMENT OF DIARRHŒA.

Dr. Faichnie speaks very highly of the use of liquor hydrargyri perchloridi in diarrhœa. He states that this drug was found an exceedingly valuable medicine during the South African War, when diarrhœa was a very common complaint.

Liquor hydrargyri perchloridi is described as an intestinal disinfectant, and combined with chlorodyne seems to remove the cause as well as the symptoms of diarrhœa.

Its use is well known, and his reason for bringing it forward now is that when in charge of two sections of a British Field Hospital, during the late Mohmand expedition he was unable to administer it for a time, when diarrhœa was prevalent, as it is not provided in the panniers. As a substitute, however, he used the following, which acted equally well, viz., one tablet of the perchloride of mercury supplied as an antiseptic, containing 8.75 grains of hydrargyri perchloridum, dissolved in 17½ ounces of water, which gave a mixture containing $\frac{1}{18}$ grain in one fluid drachm, the same strength as the B. P. preparation. The blue color of the tablet, due to an aniline dye, is quite harmless. (Journal of the Royal Army Medical Corps, October, 1908).

MAGNESIUM SULPHATE IN TETANUS.

Dr. Miller briefly abstracts the reported cases up to date with a detailed account of a boy seven years old. Of the 14 cases on record treated with magnesium sulphate, 11 severe and usually fatal cases received subarachnoid injections, but of this number 5 recovered, making a mortality of 55 per cent. The three remaining cases were of a milder type and all recovered with infusions of magnesium sulphate.

The brief resumé of the case which he reported is as follows: Diagnosis.—Tetanus. Incubation, seven days. Admitted to the wards of the Johns Hopkins Hospital on the tenth day. Eleven lumbar punctures were made within thirteen days, approximately 25 c.c. of a twenty-five-per-cent. solution of magnesium sulphate injected into the meninges at each puncture. Extensive paralysis followed each injection and involved usually all the muscles, except those of the head, neck, and diaphragm, and lasted approximately 18 to 29 hours. The injections were followed several times by respiratory collapse, lasting eleven to fourteen hours, and the pulse dropped, though not to a dangerous level. Antitoxin, daily for fourteen days, in doses varying from 1500 to 7000 units, copious saline enæmas and infusions, and sedatives for a short time, were also used in the treatment. Discharged as cured five weeks after admission to hospital. Miller says that it may be affirmed that

by the use of magnesium sulphate it is possible to achieve complete muscular relaxation in almost all cases of tetanus; from the report of results there seems to be a distinct benefit to the patient in this condition, inasmuch as it prevents the rapid exhaustion due to convulsions and in most instances has made it possible for the patient to take nourishment. It is very likely that when the technique is worked out completely, a great many lives will be saved. (American Journal of the Medical Sciences, December, 1908).

OXYGEN INSUFFLATION FOR REVIVAL OF NEW BORN.

Dr. Cavazza discusses a method for the restoration of respiration after the ordinary methods have failed. His method consists in taking a breath of oxygen and then one of air and then by mouth to mouth insufflation, breathes the oxygen into the child's lungs, stimulating breathing by the reflexes from time to time. He has been successful in three very severe cases. In one case of long and difficult labor, asphyxia was marked, but the heart was faintly beating. After half an hour of the oxygen insufflation the temperature rose to normal and the heart gained ground a little, but there was not a trace of respiration. He kept up the insufflations for two hours and three-quarters, when signs of restoration of breathing were perceived and the child soon revived. In one case he kept up the insufflation for an hour before the oxygen arrived, the heart action slightly improving under it. Signs of respiration became evident in twenty minutes after the oxygen was used. The author believes that the advantages of this measure, as a last resort, counterbalance all the possible drawbacks. (Journal of the American Medical Association, January 9, 1909).

PANCREAS DIABETES, TREATMENT OF.

Dr. Bruck remarks that the joint action of the adrenalin and pancreatic secretions under normal conditions prevent glycosuria, but if the pancreatic secretion is lacking, the adrenalin gets the upper hand and glycosuria follows. He, therefore, suggests that the antagonistic action of adrenalin might be utilized in the treatment of diabetes. No glycosuria is produced in dogs after the pancreas is removed and the adrenalin secretion is inhibited or if an active pancreas preparation is injected into the veins. The pancreas diabetes is, therefore, rather a negative pancreas and a positive supra-renal diabetes, as the overproduction of adrenal is responsible for the glycosuria. He suggests that the same principal might be applied in pancreas diabetes, which is the base for the treatment of exophthalmic goiter with the serum or milk of thyroidectomized animals. By excluding the adrenalin from the circulation, the milk or serum of animals thus treated might prove an effectual means of supplying the diabetic with the missing neutralizing pancreatic secretion. (Medizinische klinic, Berlin, November 15, 1908.)

PHYSOSTIGMIN IN POSTOPERATIVE ILEUS.

Dr. Goth gives new views on the treatment of postoperative ileus. He reports three cases of severe ileus from paralysis of the bowels after major operations. The symptoms indicated a septic infection except that the tongue was healthy looking; $\frac{1}{64}$ of a grain (0.001 gm.) of physostigmin salicylate was injected and immediately vigorous peristalsis was induced. Twenty minutes after the last dose, there was no more flatus. In one case a third injection was administered, while in another case $\frac{1}{32}$ gr. (0.002 gm.)

accomplished the desired results in less than half an hour. The author attributes the cause of the postoperative paralysis as due to the lack of an omentum as a covering for the intestines. (Zentralblatt für Gynäkologie, Leipsig, December 19, 1908).

SODIUM CINNAMATE IN TUBERCULOSIS.

Drs. Reynier and Bluson state that they think that sodium cinnamate has beneficial results in tuberculosis. They report twenty-one cases of pulmonary and external tuberculosis in which this drug has been given a thorough trial. In ten cases the bacilli vanished from the sputum and the stethoscope showed approximately normal conditions out of the nineteen patients who showed the most benefit. Their experience seems to suggest that this drug combines with the toxins engendered by the bacilli, transforming them into non-toxic compounds. Favorable voices have been raised here and there since Landerer first proclaimed the efficiency of sodium cinnamate, and it has been successfully used in Spain, but Reynier asserts that it has not been given generally the attention it deserves. He prefers to give this drug in subcutaneous or intramuscular injections, up to the maximum of 0.3 or 0.4 gm. (from 4.5 to 6 gr.) in two days. His patients were mostly adults. (Bull. de l'Académie de Médecine, Paris, November 24, 1908).

STRYCHNINE IN PARALYZED LIMBS.

Dr. W. Steele, of Mongaup Valley, N. Y., states that the hypodermic use of strychnine sulphate has a good local effect and is of temporary benefit in paralyzed muscles; that some patients require five to ten times the usual dose; and that ¼ grain is about the proper amount where paralysis is complete.

Two cases are detailed: The first case was one of acute transverse myelitis, in a man fifty-seven years of age. Paralysis of one leg from hip down; nearly complete. He received $\frac{1}{20}$ grain strychnine sulphate injected in the paralyzed muscles of the hip or leg daily, except Sundays, for twenty-six days. There was some improvement and little atrophy. The dose was then doubled to $\frac{1}{10}$ grain, and these injections were continued for twenty-seven days more. This was changed to silver nitrate, but since there was less effect and improvement, it was abandoned after having been used for sixty-nine days. Then four tablets of the strychnine sulphate, $\frac{1}{20}$ grain each, once a day were used, which was finally increased to six, and even to seven tablets. Injections were made at two or three places of the paralyzed leg at one time. After being treated for 114 days, the treatment was discontinued. The patient was in excellent health, and was able to walk. Six years later he had another and less severe attack in the other leg.

The second case was one of apoplexy, followed by hæmiplegia of the left side. Fourteen days after the stroke commenced hypodermic injections of strychnine sulphate were given, using $\frac{1}{20}$-grain tablets twice a day, and running the dose up to $\frac{1}{10}$ grain on the third day, finally giving him four tablets twice a day, or $\frac{8}{20}$ grain per day, which treatment was continued for eight days. Patient gained rapidly in every way except use of his fingers. Four weeks after the attack he went home, and eight weeks after the attack he was walking with a cane, though he could not move fingers. (New York State Journal of Medicine, October, 1908.)

SWEATING FEET, TREATMENT OF.

It is stated (in the Medical World, November, 1908) that good results have been obtained from the following treatment. Make a solution of potassium permanganate so that it will be of a deep red color. Soak the feet in it for fifteen minutes before retiring. The next night make a solution of formaldehyde, a dram to a pint of water, and soak the feet in this for fifteen minutes. Continue these alternate treatments until the excessive perspiration stops. If the skin is already abraded, use a weaker solution of formaldehyde to start with, as it will cause intense smarting on an abraded surface; one can speedily increase the strength of the solution as tolerance is established and as the skin becomes toughened.

Make up a powder composed of a dram of salicylic acid and a dram of tannic acid, with an ounce of boric acid. Dust the feet with this in the morning and sprinkle the inside of the socks with it before putting them on. It may be necessary, at intervals of a few months, to resume treatment for a few nights only; yet some cases, once cured, never again cause trouble. (Merck's Archives, December, 1908).

THE X-RAYS IN EPITHELIOMA.

G. E. Pfahler, Philadelphia, divides the epitheliomas, as regards their treatment by the Röntgen-rays, into five classes: (1) Superficial epitheliomata of the exposed surfaces of the hands and face, which should yield practically 100 per cent. of cures. They are usually small in area, of slow growth and comparatively painless. They will usually require ten or twelve treatments and from two to three months for a cure; the results are more likely to be permanent than with any other treatment. If untreated there is a possibility of this form passing into the deep ulcerating type. (2) Superficial epitheliomata associated with senile keratosis also yield to the Röntgen-rays very similarly to those of Class 1, but recurrences are much more probable. These patients also seem to have exposures at short intervals on account of the risk of dermatitis. (3) Pearly epitheliomata. These include a small group of cases in which there is a circle of pearl-like elevations forming a ridge and surrounding a central area much resembling healthy skin. The ridge spreads, often irregularly, while the center heals. They are of slow growth and not very malignant, but they yield to treatment less readily than the other superficial forms. Best results will probably be obtained by protecting the soft center and treating the border strongly with a very soft tube. (4) Under the class of deep ulcerating epitheliomata, Pfahler groups those cases that involve the deeper tissues and present large ulcerating surfaces with indurated edges and often with an indurated base. They may involve any part of the body, and are at times associated with enlargement of neighboring lymphatic glands. They often consist of recurrence of superficial epitheliomata of Class 1 after treatment with caustics, curettement or excision. These cases do not yield readily to the rays, and should be excised when possible. (5) Epitheliomata on mucous surfaces, including those on the lips and inner surface of the cheeks, the vagina and the penis. In these cases no time should be lost by X-ray treatment, but the growth should be excised at once, and this followed by a thorough course of treatment with the rays over the glandular area. (Journal of the American Medical Association, November 21.)

GREATER NEW YORK NUMBER.

An unusual feature of medical journalism will be presented in the March issue of the American Journal of Surgery. The entire original subject-matter in this issue will be contributed by New York City surgeons of note, and a number of new operations will be first presented therein. Among the contributions to appear are: "A New and Simple Method of Intestinal Anastomosis" (illustrated), by Howard Lilienthal, M.D., Attending Surgeon, Mt. Sinai Hospital. "Sigmoiditis and Perisigmoiditis," by James P. Tuttle, M.D., Professor of Rectal Surgery, New York Polyclinic, New York. "Sacral Suspension of the Uterus—A New Technic" (illustrated), by James Van Doren Young, M.D., Surgeon, St. Elizabeth Hospital, New York. "Cancer of the Breast," by Willy Meyer, M.D., Professor of Surgery, Post-Graduate Medical School; Attending Surgeon of German Hospital, New York. "A Modified Operation for Inguinal Hernia" (illustrated), by Albert E. Sellenings, M.D., New York. "The Localization and Removal of Foreign Bodies with Especial Reference to Those in the Skeletal Tissues" (illustrated), by Dr. Walter M. Brickner, Assistant Adjunct Surgeon, Mt. Sinai Hospital; Editor-in-Chief, American Journal of Surgery, New York. "An Operation for Direct Blood Transfusion with a Description of a Simple Method," by John A. Hartwell, M.D., Attending Surgeon to Bellevue Hospital, New York. "Plastic Mastoid Operation—A New Method of Operating in Acute Mastoiditis," by T. F. Hopkins, M.D., Assistant Surgeon Oral., New York Eye and Ear Infirmary, New York. "Dislocation of the Cervical Vertebræ" (illustrated), by James P. Warbasse, M.D., Special Editor, American Journal of Surgery; Attending Surgeon to Seney and German Hospital, Brooklyn. "Surgery of the Pericardium and Heart," by H. Beeckman De Latour, M.D., Attending Surgeon to St. John and Norwegian Hospitals; Professor of Clinical Surgery, Long Island Medical College. "Fibrosis Uteri and Its Surgical Treatment" (illustrated), by S. W. Bandler, M.D., Adjunct Professor of Gynecology, New York Post-Graduate Medical School. "Laryngeal Stenosis in the Adult, Successfully Treated by Intubation," by William K. Simpson, M.D., Professor Laryngology, College of Physicians and Surgeons, New York.

THE AMERICAN SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS.

The American Society for the Study of Alcohol and Other Narcotics will hold a meeting at Washington, D. C., March 17th, 18th and 19th, in the afternoons and evenings, for the presentation and discussion of papers on the various phases of the alcoholic problem.

This Society was organized in 1870, and was the first medical association to take up the study of alcohol and the diseases following from its use. The present meeting is a response to an invitation from leading men at the Capitol to present to the profession and public some scientific and authoritative conclusions concerning the alcoholic problem, based on facts of laboratory and clinical research, and entirely from a scientific point of view.

Over thirty papers on different phases of the subject have been promised, and many of them from the great leaders of the medical profession. Physicians and all interested are very cordially invited to be present. For programs and particulars, address Dr. T. D. Crothers, Secretary, Hartford, Conn.

Book Reviews

DISEASES OF THE GENITO-URINARY ORGANS AND THE KIDNEY. By Robert Holmes Greene, A.M., M.D., Professor of Genito-Urinary Surgery, Medical Department of Fordham University; Genito-Urinary Surgeon to the City and to the French Hospital, New York City, and Harlow Brooks, M.D., Assistant Professor of Clinical Medicine, University and Bellevue Hospital Medical School; Visiting Physician to the City Hospital, New York

City. Second Edition, Revised and Enlarged, with 323 Illustrations. Philadelphia and London: W. B. Saunders Company, 1908.

The aim of this volume is to present a discussion of the more important diseased conditions of the uro-genital tract, taken from the standpoint of the general practitioner and surgeon. This volume consists of thirty chapters, and three hundred and twenty-three illustrations. The chapter on "The Surgery of the Kidney" deserves especial mention, and the description of the various surgical procedures makes it one of the most important features of this handsome volume. The author describes very vividly the method as to the permanent retention of the kidney after fixation, as advised by Dr. J. M. Edebohls.

This edition is a thorough review of the previous one, and together with the numerous changes and additional subjects, has been brought up to the requirements of to-day.

In the chapter devoted to the consideration of the tumors of the kidney the authors state that the hypernephroma is the most frequent tumor that occurs as a primary growth. "These tumors are said to spring from the fetal tissue originally intended to develop into adrenal bodies, but which become detached and incorporated in the anlage of the kidney."

The general arrangement of the book is extremely pleasing, and the consideration of the different instruments cannot be surpassed.

The author concludes his work with an interesting chapter on "Sexual Neuroses."

Principles and Practice of Physical Diagnosis. By John C. DaCosta, Jr., M.D., Associate in Clinical Medicine, Jefferson Medical College; Chief of Medical Clinic and Assistant Visiting Physician, Jefferson Hospital; Hematologist, German Hospital; Fellow of the College of Physicians of Philadelphia; Associate Member of the Association of American Physicians; Member of the American Climatological Association. With 212 Original Illustrations. Philadelphia and London: W. B. Saunders Company, 1908.

In compiling this work on the "Principles and Practice of Physical Diagnosis," Professor DaCosta has undertaken a piece of work that is well worth doing, and has performed the task exceedingly well. He has taken up the subject from all its aspects, and in order to guide those far advanced in the study and practice of medicine, the subjects of pathology and diagnosis are accorded commensurate prominence.

The text is eminently practical; theory is dispensed with as much as possible, or where mentioned, is dealt with briefly and fairly. An interesting and valuable consideration is given to the various types and abnormalities of the chest, embodying many of the author's own observations on the subjects, as well as the more recent methods of investigation.

The book is divided into eight sections, namely: "Methods and Technic of Physical Examination;" "Examination of the Thorax;" "Examination of the Bronchopulmonary System;" "Diseases of the Bronchopulmonary System and Mediastinum;" "Examination of the Cardiovascular System;" "Diseases of the Cardiovascular System;" "Examination of the Abdomen and Abdominal Viscera."

Thoracometry, cyrtometry, sphygmomanometry, sphygmography and cardiography are discussed at length.

The various affections of the heart are considered, and stress is laid on the leading points to be found during the physical examination, and the erroneous and exaggerated statements often made in this connection are pointed out. He also states the clinical anatomy and pathology, and their importance in health and disease, and it enables one to interpret intelligently and correctly the results which are obtained by the various modes of examination. The text is lucid and clear, is admirably matched and illuminated by numerous and adequate illustrations, photographs and diagrams. The feature of this work is its fullness in detail and the numerous points in technic.

The subject matter is conveniently arranged, with a capital table of contents at the beginning, and an admirable index at the end.

A Reference Hand-book of Gynecology for Nurses. By Catharine McFarlane, M.D., Gynecologist to the Woman's Hospital of Philadelphia. Illustrated. Philadelphia and London: W. B. Saunders Company, 1908.

This is truly the nurses' desideratum as to a reference hand-book of gynecology. This is a small book, handsomely bound, and contains the essential facts concerning gynecologic examinations, positions, diseases, minor and major gynecologic operations.

Every chapter contains just what the nurse wants in the performance of her duties. All the details of asepsis and antisepsis during other operative cases are well stated. The thoroughly practical caste of the book is what recommends it to the nurse. Everything is arranged systematically, and will no doubt serve as a valuable guide.

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Original Articles

Department in charge of J. MADISON TAYLOR, A.M., M.D.

THE TREATMENT OF TYPHOID FEVER WITH SOLUTION OF CALCIUM CREOSOTE.

Analysis of 118 Cases—Practical Remarks on the Disease.[1]

BY LOUIS KOLIPINSKI, M.D.,
WASHINGTON, D. C.

(Concluded from the February issue.)

Pigmentation of the palms and soles was not encountered.

Glossitis, stomatitis, tonsillitis, parotitis, lesions of œsophagus, disturbance of the stomach, except flatulence and vomiting, not seen.

Diarrhœa in the beginning is frequent from food or purgatives. This rights itself. Diarrhœa during the course is due to infected milk, which should always be changed at once as previously described. Medication is superfluous.

Meteorism is found in all toxæmic patients. No instance of it required particular attention, its degree being moderate or indicated only.

Dysentery not met with.

Abdominal pain not uncommon in hypogastrium, right or left flank or groin. That it bears absolute relation to grave intestinal complications is not certain although pain and tenderness appear in them. Abdominal pain is commonly due to intestinal flatulence or constipation.

[1] The treatises on typhoid fever by Curschmann, in Nothnagel's "Encyclopedia of Practical Medicine," edited by Wm. Osler, and of McCrae in "Modern Medicine," edited by the same, were used as guides to the text of this essay.

Abdominal tenderness was not found, it is without doubt of more import than pain.

Hæmorrhage and perforation of the intestine.—It is a doubtful fact that hæmorrhage or perforation can occur in typhoid fever unless the intestinal ulceration is in a septic and necrotic state. Hæmorrhage and perforation are accidents when the ulcers are partly gangrenous and in the act of casting off the slough.

There are in this series none of perforation and of hæmorrhage but two; which latter are not to be counted in a comparative study of results of treatment, as one case was first seen after the occurrence of three severe bleedings and the other had been sick with the fever three weeks before treatment was begun. Both of these serious complications are therefore practically very much less frequent, or as in this collection, absent. Hæmorrhage and perforation being lesions of the same site, and only different in depth or direction, may therefore happen either separately or combined.

There is one great exciting cause, which will be found if sought for in almost all of these events, namely, the patient sitting up or getting out of bed. By either of which acts the intestinal movement or motion is increased, much more so in urination and defæcation. The intra-abdominal pressure and compression increases, all of which start the injury of rupture or a tear.

From this reasoning it is apparent that, in the flat supine posture of the body in typhoid fever, the intestinal ulceration is guarded from mechanical harm in the highest possible degree. No case can be considered properly cared for and treated in which the bed is left before convalescence is well established. Hæmorrhage and perforation appear to be more common in the German than in other nations of mankind, comparing only the Caucasian race.

Rectal diseases.—There was no case of complicating dysentery, none of ulceration of the rectum, none of fissure of the anus.

Hæmorrhoids, old or recent, may play an important rôle in bleeding from the rectum. There were three instances of this. In one it caused the sounding of an alarm from fear of intestinal hæmorrhage. Another was a robust man, with the ambulatory form of the disease, in whom hæmorrhoidal bleeding was so prolonged and abundant that he was highly exsanguinated before treatment was begun. He had not recovered from his anæmia at the end of six months. The third was a woman who had had a mild, short, primary fever. Fæcal impaction brought on a relapse. Futile efforts at defæcation caused repeated and copious bleeding from hæmorrhoids. She had attacks of vertigo, faintness, looked bloodless and the legs became œdematous. The fever of the relapse ran a low course to recovery.

Splenic enlargement never grew to clinical interest or importance and was not sought for with the object of diagnosis.

Diseases of gall bladder.—Gall stone, cholecystitis, empyema, not observed.

Pancreatic diseases.—No pancreatic disturbance or disease found.

Epistaxis.—Happened in several instances in children. The amount of bleeding was so small and short that no local treatment was needed. For the

bleeding from the nose in typhoid fever, insufflation of precipitated sulphur is relied upon; all forms of plugging are eschewed.

Larynx.—No form of laryngeal involvement encountered. Respiratory act. This varied from 24 to 28. Was not irregular or suffered any interference.

Bronchitis.—In one case a heavy, acute purulent bronchitis.

Cough.—There was in many a laryngo-bronchial cough, accompanying the rise of the fever and disappearing with its decline. The cough apparently aggravated by the supine position and being in its sound, short and sharp. No medication was given and its frequency was very probably intensified by the stimulating action of the calcium creosote on the respiratory mucous membrane.

Labor pneumonia, pneumotyphoid, bronchopneumonia, and pleurisy. None of these diseases present. Likewise no case of lung infarction or abscess. No instance of hæmophthisis.

The Pulse ranged from 80 to 90 beats per minute. The rapid pulse of a weakening state and the apparent debility of the third-week period, a pulse of 120 to 130 was counteracted by increase of milk. The decrotic pulse not often felt and only of a few days' existence. The slow pulse of the decline of fever with normal or subnormal morning temperature disappeared with convalescence and the taking of mixed food.

Endocarditis, pericarditis, heart weakness, and myocarditis not observed.

Collapse.—This dangerous complication was not met with. It is the outcome of high fever, much sepsis and insufficient food. To combat it when it has been allowed to break in is mostly hopeless. The various cardiac stimulants that are sanctioned are like a sword of lead.

Diseases of the arteries.—None found.

Diseases of the veins.—One case of left femoral thrombosis. On the eleventh day of a twenty-day fever, moderate pain, no increase of fever. Swelling of limb gone a month later.

Headache.—The headache of the first few days is fairly frequent; never severe; invariably disappears spontaneously; no medication.

Insomnia was occasionally so intense that an opiate was given at night. The sleeplessness is of short duration and never persists as the fever grows less.

Stupor occasionally encountered, oftener in children, lasts only a few days.

Delirium marked, but not violent, in three cases of the whole number.

Dreams were not frequent, not vivid or causing fear the next day. In some the dreams were of food and of eating, the recollection of them pleasant.

Memory.—The memory in some slightly defective, but not of such extent or degree of impairment as to be objectively striking. The recollection of the experience of the disease not unpleasant.

Psychoses.—One case of alternating melancholia and mania in a middle aged female. Type of fever low. The mental derangement began with the inception of the disease and disappeared with the fever.

Tremor.—Noted in a number of cases at the height. No case of trismus or tetany.

Hysteria.—A number of times in women. A dangerous complication if not correctly estimated, as it makes the diagnosis more difficult. The hysterical outburst grows worse with the primary disease and should in every instance be disregarded, the mind intent alone on the treatment of the typhoid fever.

Meningitis.—No case of serous or purulent meningitis—one case of typhoid fever in a child exactly simulating epidemic, cerebrospinal meningitis; the headache, the sudden onset, the vomiting, the herpes, and Kernig's sign.

Convulsions.—One case of a lad of 16 years with a solitary initial convulsion on getting out of bed.

Neuritis not found. The condition described as "tender toes," which seems to be a neuritis or neuralgia of the feet likewise not encountered.

Polyuria.—This is normal to this as to other treatments where much liquid is ingested. Diabetes insipidus, a dangerous associated disease not met with.

Nephrotyphus, hæmaturia, pyuria, albuminuria, not found.

Typhoid bacilluria in a number of the cases.

Retention of urine did not happen. The use of a catheter in typhoid fever may bring to the patient great misfortune.

Menstruation.—In some it continued; in others, younger subjects, it disappeared one or two months.

Pregnancy.—One case, fifth pregnancy of a woman of 34 years. Time 6½ months. Duration of fever seventeen days. Child at term large and robust, requiring for the mother obstetric forceps for the first time.

Mastitis, orchitis, thyroiditis, enlargement of subcutaneous lymphatic glands; none of these found.

Periostitis, myelitis, osteomyelitis, not found.

Arthritis deformans.—One example in a young woman of twenty-four. Acute exquisite enlargement of knuckles of both hands, the shoulder joints and one wrist, pain and crepitus present; spontaneous disappearance within 10 to 14 days.

Muscles not found involved or injured.

Abscess.—One subcutaneous abscess due to saline axillary transfusion.

Alveolar abscess not found.

The following were associated diseases:—

1. *Pulmonary tuberculosis.*—In one case the typhoid fever was the complicating disease, duration 37 days. In two other patients acute pulmonary tuberculosis appeared in 2 or 3 months after recovery from the typhoid fever.

2. *Epidemic influenza.*—One case in a child.

3. *Migraine.*—One case in a girl.

4. *Diabetes mellitus.*—One case in a male of 22. It had been of severe form for six months. The accompanying chart shows the fever and the relation to it of the daily composition of the urine. The glycosuria reappeared in the decline and convalescence.

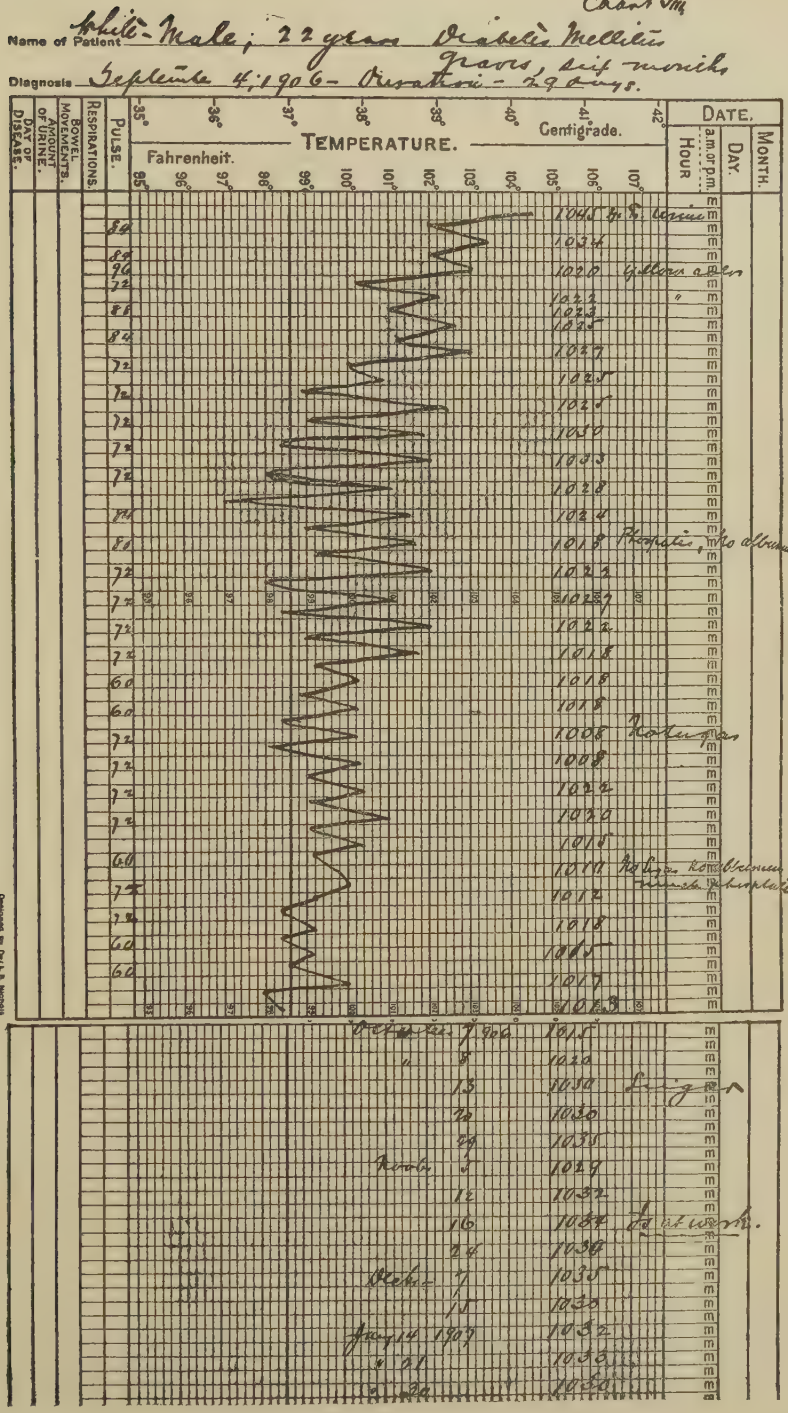
Chart VIII
Name of Patient White - Male; 22 years Diabetes Mellitus
Diagnosis September 4, 1906 - Duration - 29 days.
Graves, six months
TEMPERATURE.
Fahrenheit.
Centigrade.
DATE.
Hour
Day.
Month.
Pulse.
Respirations.
Bowel Movements.
Amount of Urine.
Day of Disease.
Gilbert & Allen
Pleuritic effusion
Rothrock
Holly. Robinson
Pleuritic effusion
Discharged
Relapse
Jan 14 1907

Abscess of ear.—Two cases in children of double otitis media purulenta. The one a female infant of two years, the otitis on the seventh day; the other a girl of five years likewise with epidemic influenza, the otitis on the fourth day.

The Diagnosis.—The diagnosis of typhoid fever for rapidity and accuracy depends on the experience and skill of the practitioner. The symptoms which lead to its detection are the history of the beginning, the fact of no former genuine attack, the appearance and manner of the subject, the nature of his complaints, the temperature and its behavior for one or two days, and the frequency of the pulse.

As it is a matter of great rarity that the patient suspects or declares the name of his disease, and as the beginning of the febrile infection acts as an intoxicant to the brain, so does the altered speech, manner, behavior and ideas vary with the individual, and has led some to say that the symptoms are of a protean character.

However strange, new or fallacious the case may attempt to be, it is rare that a correct diagnosis cannot be made within twenty-four hours and seldom that deliberate study and reflection is deceived by an incorrect opinion.

It is in all cases absolutely necessary to review the various visceral and systemic diseases that present any species of similarity and to exclude the same. Of these diseases one must always remember tuberculosis, pulmonary, miliary, intestinal and meningeal; cerebrospinal meningitis, the septicæmias, ulcerative endocarditis, osteomyelitis, epidemic influenza, the malarias, the exanthemata, particularly small-pox; the pneumonias and pleurisies; food stuff intoxication, ptomaine poisoning, typhus and relapsing fever where found; anthrax and acute glanders; secondary syphilis and more often the fever of the tertiary stage; trichinosis, acute nephritis and appendicitis.

The whole nature of a rapid diagnosis is a mental inspection of the patient based on practice and very much like the recognition of diphtheria at a glance by one familiar with its gross appearance. The proof of a bacteriologic culture is hardly needed to a practiced worker.

The tests and several symptoms of typhoid fever much in vogue are highly useful to prove the existence of the disease, but none are equal in quickness founded on experience. The rose spot eruption, the enlarged spleen, the typhoid stools; the typhoid bacilli in blood, fæces and urine. The Gruber-Widal reaction; the Diazo reaction of Ehrlich are the symptoms and tests that are meant. The Widal reaction was made use of in fevers of short duration—of ten days or less. Such are often a matter of dispute or suspicion. The initial fever is high, with a rapid decline. The convalescence lasts longer than the disease. The Widal reaction is of great value to confirm the correct diagnosis.

Prognosis.—As in this series of 118 consecutive cases there was no mortal one, the prognosis in typhoid fever with this treatment can be claimed to be good. Typhoid fever is always a serious disease of great and universal prevalence. The subjects of it deserve none other than careful and constant medical attendance. When we consider the manifold dangers within the stricken individual, the many fatal accidents he may encounter from without,

the imperfections of human aid in the nursing, the liability of error in directions or execution; these possibilities will perhaps always, with the best of treatments, give a mortality of 2 to 3 per centum.

The Nurse.—Each case deserves a single nurse. The best nurse is one with training in her work, and of these the one who knows the method of treatment and its capabilities. A "trained" nurse, a synonym of expense and worry, unfortunately to some of the laity, is not a necessity. In the case of a child, the best nurse, if her health allow, is its mother, the wife of a husband, a sister of some one of her family. An adult male or female of moderate intelligence, some aptitude and fair perseverence does very well, if the medical attendant give the proper instructions and is sure to supervise the execution thereof.

The maxim for all concerned in the treatment is the Ciceronian proverb: *Uno opere, eandem incudem noctem diemque tundere.*

Hospital or home treatment.—The home treatment is superior to the hospital treatment in most particulars. The most powerful argument and the final one is the greater mortality in institutions. At home the subject has no sense of isolation or neglect. No longing for his family, more constant nursing, ready redress for complaints. No dangers from the transportation of his sick body. He feels security and protection, a greater hope of recovery. He responds more quickly to treatment. In fine, he receives at home the earliest diagnosis and its proper application.

Remarks on other treatment and medicines in typhoid fever.

The Care of the mouth.—Cleanliness practiced on the buccal cavity and various mild antiseptics in use are unnecessary. The state of the coating of the tongue, the salivary secretion and moisture are useful in being clinical marks of the extent and degree of intestinal ulceration and of the general infection. A moist cavity and a receding coating are early signs of healing lesions. The frequent washing and mopping of the mouth are apt to irritate or inflame it.

Alcohol.—All the various forms of alcoholic drink are unnecessary and of no therapeutic value at all. The belief in alcohol as a "stimulant" is a primitive, popular fallacy, not proven by clinical or experimental medicine.

Diet.—There is no other diet for typhoid fever but milk, and if such is ever found it will not be able to compare with what we possess, in price, abundance, labor of manufacture, or collection.

Cardiac and circulatory stimulants.—These are not used and their exhibition is always an act engendered by alarm or apprehension. The rational cardiac stimulant is the quantity of fluid required to replenish the blood as reduced and drained by the disease.

Cold and hydrotherapy.—It is a well known fact that the subject of this fever is exhausted by great summer heat and that an ideal temperature in the cold months is found in a room, without fire, where the thermometer is from 45 to 60° F. Cold thus used is agreeable to the sick. Cold water in sponging the body, the wet pack and the bath, whilst of great value, are entirely discarded for weighty reasons. An ice cap to the head, an ice bag or coil to abdomen or other part of the body should not be applied. The wet pack was used twice, on two occasions on the same day, in the case of a small boy,

stuporous and rebellious to nursing when awakened. He resented any disturbance of his repose. Here the cold wet pack acted well, not to benefit the disease but to make the sick one rational and tractable. Daily ablutions are left to be practiced as the nurse thinks proper or the patient desires; the only important act being the bathing or sponging of the dorsal region of the trunk to detect the appearance of any spot of beginning decubitus. No systematic sponging of the body is advised; no use of the wet pack; no immersion in a cold or tepid bath.

The bath treatment of typhoid fever has saved many lives and is a useful and powerful aid in the cure. All said in its favor by those who have had extensive experience with it is true and no one should venture to condemn it on any hearsay or theoretical reason alone.

The opponents of the bath, however, are not found amongst clinicians, and such indeed could not deny its salutary effects, but, paradoxically enough, its real opponents are the typhoid fever patients the bath has cured. Asking those who have had the bath treatment, months and years afterwards, their impressions of it, awaken a sense of dislike, fear or dread. It will be difficult to find the words of one expressing pleasure or praise; it will be very easy to elicit an "O, never again!"

In the home treatment with baths, there is the doubly painful scene to be witnessed, the cries, pleading and struggles of the sick and the alarm and weeping of the family. Hard is the lot of the practitioner who uses the bath treatment as his great weapon. Where it cures, aversion as a part reward; where it fails or where death ends the disease,———. The reader may complete the sentence. The bath treatment can therefore be discarded where a better treatment is found, and that is a better treatment, where the bath is not used; which the patient welcomes and does not oppose; where complications are lessened, where the disease is shortened; where the mortality is reduced to a minimum number.

MEDICAL TREATMENT OF ACUTE APPENDICITIS.

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While surgery has been shown a decided favor in the treatment of all forms of this disease, the conscientious surgeon will not close the door against future possibilities in any form of treatment of acute appendicitis promising the mitigation of human suffering and the saving of human life, since the consensus of professional opinion is never stationary, but ever advancing, ever accepting facts and methods of practical utility gleaned by the general practitioner from the field of general practice. General medicine is not retrograding. The general practitioner of medicine is to-day better qualified and better equipped to fulfill the mission of his high calling than ever before in the world's history. He is quietly going about his work, frequently introducing new and

original ideas in the application of remedies to disease, securing results that were not dreamed of twenty years ago, when appendicitis began to attract general attention.

A physician to-day may be a fair operator, yet deficient in his knowledge of therapy, while at the same time a general practitioner may be deficient in his knowledge of anatomy and physiology to the extent of blinding him to many surgical and therapeutic possibilities, which are made comprehensive in the light of anatomical and physiological knowledge.

We have been prompted to attempt this article because of so much attention having been given to the removal of the appendix, both in its diseased condition and its normal state, while so little interest has been manifested in the means and agencies that may be invoked for the removal of the cause of disease within the organ. The purpose, therefore, of this paper will have been accomplished if no other point be gained than to stimulate a more thorough investigation of the subject from a medico-surgical point of view.

Reviewing the medical treatment devised for acute appendicitis, one is impressed with its briefness, absence of specified dosage, and the want of confidence shown in medical agents. No prescribed course of treatment has come under my observation for the process itself, which can inspire the practitioner with any reasonable hope of ultimate success in the use of medical agents, or place the patient in a condition the most favorable for surgical treatment. We are told to "give opium in sufficient amounts for the relief of pain only," to "evacuate the bowels with salts or oil," and to "apply the ice-bag to the abdominal wall."

As a result the inflammation progresses, the patient is given over in most cases to the surgeon for treatment, or, as sometimes happens, surgical treatment is not accepted by the patient or his friends, and death ensues, or, conservative nature, making the best of a bad bargain, restores the patient to partial recovery and elects him to "future attacks." Opium, having the well known physiological property to check or modify all secretions of the body, save, perhaps, that of the skin, the use of it places the intestinal mucous membrane in no functional condition to favor the process of osmosis. Salines are supposed to stimulate osmosis, but when used in connection with opium, this process is so far modified that the secretion of serum is insufficient to soften the mass of fæcal matter, or increase the volume of intestinal fluids necessary to promote elimination.

In most cases of acute appendicitis, we find gastric irritation present. The use of opium does not tend to relieve this irritation when given in amounts sufficient for the relief of pain only, and when so given peristalsis is enfeebled, and the result is, the stomach is left in no condition to retain either salines or other purgatives.

Considering the length of the intestinal tract, and its usual constipated condition at the onset of engorgement, it is not unreasonable to ask: When do we know, even under the most favorable conditions, that it has been cleared of fæcal matter? We certainly can not hope to accomplish this result by the administration of antagonistic remedies at a time when there is more or less rigidity present, constricting the lumen of the bowel and counteracting the laxative effect

of any remedy that may be used. This method of treatment will invariably accentuate the symptoms, by bringing about the exact results we desire to obviate, viz.: peristalsis, griping and spasm of the gut, and it is by no means a rational course to pursue preparatory to surgical treatment. So far as relates to the application of the ice-bag to the abdominal wall, we recognize its use as a valuable adjunct to other remedies.

Viewing the literature on the vermiform appendix from the medical standpoint one is brought to face an open field for investigation, wherein mystery and uncertainty are the prime factors presented.

The organ, having no known function, frequently taking on inflammation with misleading symptoms, such as pain in parts remote from the seat of engorgement, accompanied by vomiting, and other symptoms common to gastric, hepatic and intestinal disorders, has given rise to uncertain, expectant and palliative plans of treatment with delay in one way or another until the proper time has passed for medical agents to correct the difficulty, this state of affairs having been brought about by no other cause than the absence of rationally and radically prescribed treatment. Since appendicitis has, I believe, been given more prominence during the past twenty years than any other intestinal disorder, it is phenomenal that so little medical treatment has, up to the present time, been devised for its prevention, treatment and cure.

The profession is yet divided upon theories and plans of treatment, some claiming there is no medical treatment for this malady. While one has said, "the near future will demonstrate that the treatment of appendicitis belongs to medicine and not to surgery," the other urges that "the result of purely medical treatment is not sufficiently bad, and of surgical treatment not sufficiently satisfactory to justify operative intervention in all cases." As a rule, at the beginning of treatment of acute appendicitis, the surgeon is no more certain of existing conditions nor of the results he is able to secure prior to operating than is the general practitioner, prior to treatment. Mistaken diagnoses are frequent; a healthy appendix is often found and removed; so proficient has the surgeon become in some localities, that operations are performed upon all cases of painful abdomen due to uncertain origin.

While surgery is to be complimented for giving relief in cases adapted to this line of treatment, and due homage granted for bearing responsibilities in appendicitis for years past, the time seems propitious when the medical branch of the profession should awaken to its responsibility, and share alike with the surgeon the treatment of this disease.

When the general practitioner of medicine shall have come to realize the efficiency of medical treatment of acute appendicitis and shall have become capable, through differential diagnosis by means of its clinical history, physical signs and subject symptoms to distinguish the character and stage of inflammation in the individual case, and when he shall appreciate the efficacy of a harmless though radical primary treatment, there will result the abortion of many incipient cases; the cure of many found in the first stage of inflammation; the frequent evacuation of the appendicular abscess through its normal exit into the bowel to be followed by spontaneous cure, while surgical cases will be

speedily placed in the most favorable condition preparatory to surgical treatment. Then there will result a marked diminution of sub-acute and chronic cases commonly known as "recurrent attacks."

Acute inflammation of the vermiform appendix should be classed among the visceral diseases coming primarily within the domain of the general practitioner, who should be able to treat it with the same degree of confidence of ultimate success one assumes in the treatment of any other abnormal inflammation. It is not our purpose here to dwell upon the anatomy of the appendix; it is sufficient to say it is composed of the same structures entering into the formation of the intestinal tract and endowed with muscular fiber sufficient to demonstrate its power of resistance, and circulation sufficient to establish conservative healing when associated parts are in their normal state and function. Were it not so constructed, no one would be free from inflammation of this organ, situated as it is, where, from gravity, the mass of fæcal matter must continually pass over its *cul-de-sac* formation.

That it has resistive power has been frequently demonstrated in cases where there had been cohesion of its mucous membrane with atrophy of the part giving evidence of previous inflammation in subjects having undergone no treatment for the disease, discoveries being made of this condition during autopsies, following death from other causes. Too much attention is being paid the theory that the appendix in its insignificance is prone to become inflamed through its want of resistive power from its cramped position and feeble circulation. While in the main this point is not to be ignored, yet this condition should be classed as sub-acute or chronic engorgement. Attention should rather be directed to the immediate cause underlying these conditions in the strictly acute form of the disease, since constipation and impaction exert a pressure many times greater than the inherent power of the appendix to resist in acute inflammation.

Be it understood the terms "constipation" and "impaction" in this paper are used figuratively to make comprehensive the local source of irritation and are not meant to imply that the entire bowel must necessarily be involved in constipation and impaction to produce the irritation, the presence of effete matter within the appendix, of either solid or fluid nature, for any great length of time being sufficient to justify the use of these terms.

Constipation and impaction being prime factors in the causation of acute appendicitis, we are not surprised at the fatal issue from early surgical intervention in many cases. When we consider the septic condition present from constipation and impaction, and when we also consider that tumefaction comes in to lend a hand in pressure of the parts, all conspiring to eliminate the one essential condition favorable to resolution, viz.: unobstructed blood and lymphatic vessels. The fæcal matter found within the engorged cæcum and appendix does not consist alone of deposits of débris following digestion and absorption of food, but also of deposits of nerve-waste and other tissue waste matter eliminated by glandular organs. This effete matter being held in contact with the mucous membrane enters largely into the source of irritation

producing the catarrhal and ulcerative forms of the disease, obstruction of the appendicular orifice being not the only source of irritation.

Therefore, looking into one of the immediate causes of the disease we believe the appendix able to resist engorgement, congestion and inflammation, when given the opportunity at the onset of the attack by prompt and energetic treatment in the evacuation and cleansing of the adjacent parts, viz.: the larger and smaller bowel, and with proper treatment may terminate in resolution. Although cohesion of its mucosa frequently results with atrophy of the appendix, the patient suffers no further inconvenience from disease of the organ.

Treatment.—Since about eighty-five per cent. of cases suffering from acute pain in the abdominal cavity, settling within twenty-four hours in the right iliac region with rigidity of right rectus muscle, develop into the class of cases generally diagnosed as appendicitis, and in view of the fact that these cases are frequently given surgical treatment including exploratory incisions made in anticipation of appendicitis, the appendix in most cases being removed whether or not found in a diseased condition, it behooves the general practitioner to likewise take heroic though rational measures to abort or modify the disease. The urgent necessity for immediate and well-directed treatment to stay the progress of inflammation and, at the same time to pursue a line of treatment by which one can reasonably hope to "remove the cause," calls for no mincing of remedies nor procrastination in any way whatever. Especially is the general practitioner justified in this effort when the given line of treatment prepares the patient for surgical treatment which may intervene at any time deemed necessary throughout its course.

There are four primary points to be gained at the beginning of treatment:—

First, the immediate relief from pain and vomiting if present. Second, the arresting of peristalsis of the entire intestinal tract. Third, muscular relaxation of the entire alimentary canal. Fourth, painless evacuation of the entire contents of larger and smaller bowel.

There must follow the administration of cleansing and antiseptic agents, in conjunction with substantial rectal feeding when needed.

Several years ago Alonzo Clark taught the method of treating peritonitis by giving opium to the point of toleration, the use of which in the hands of the discreet physician has been a boon to humanity, the general practitioner frequently meeting with cases of visceral inflammation beyond his power to control were it not for the use of opium in one form or another during critical periods in conjunction with other means and agents that can only be applied while the patient is under the physiological effects of the drug. We are cognizant of the fact that much has been said for and against the use of opium in acute appendicitis. The extreme degree of action in either case is always to be avoided, since it is wiser to take a neutral stand, making use of any means experience has proven valuable in securing results.

The great difficulty, it seems, in the treatment of acute appendicitis, has been to relieve the patient's suffering and at the same time clear the affected

parts of offending matter. As has been shown, salts and other laxatives given in the routine way have not proven satisfactory.

The pivot upon which the following plan of treatment turns those amenable cases of acute appendicitis round to resolution within three to fourteen days will be shown to rest upon the fact that thorough evacuation of fæcal matter can be secured, aseptic cleanliness of the alimentary canal established, and beneficial results obtained from internal antiseptics (to all intents and purposes) independent of intestinal peristalsis.

I have found plain morphia-sulphate given hypodermically in dose ranging from one-half to one grain in adults, at intervals from six to twelve hours, at the discretion of the attending physician, to arrest peristalsis and to give relief from all pain and vomiting within the hour of its administration, and to produce a degree of relaxation of the alimentary canal, second only to general anæsthesia. Thus the first three primary points in the beginning of treatment are gained in the most convenient manner to both patient and physician.

In addition to this, plain morphia-sulphate to the point of tolerance lays a retarding hand upon congestion and inflammation at the seat of disease, and since rupture into the peritoneal cavity from the inflamed parts is so strenuously feared throughout the course of inflammation, we have in plain morphia-sulphate the remedy *par excellence* with which to control the degree of inflammation conducive to this complication, and one which we reasonably believe exerts no little influence in aiding to build a protective wall about the inflamed area. Indeed, Deaver says, "I have seen too great a number of cases of appendicitis sent into the hospital for operation in which there was little room for doubt that the excessive peristalsis caused by the persistent administration of salines had only more widely diffused the septic matter in the abdominal cavity, and was in large measure directly responsible for the presence of diffuse peritonitis. The mortality of cases which have reached this stage is only too well known. On the other hand, patients who have had opium administered to them usually are brought to the hospitals with localized inflammation or abscess, and the mortality of such cases is decidedly less than that of those attended by general peritonitis."

While the disease in its acute form rapidly reduces the vital powers of the patient, in plain morphia-sulphate we have one of the best known agents to meet this contingency by sustaining the heart's action and relieving irritability of the nervous system. The remarkable degree of tolerance for plain morphia-sulphate manifested by patients suffering from inflammation of abdominal viscera is, in many cases, phenomenal, inasmuch as many waking hours are enjoyed in comfort while little profound hypnotic effect of the drug is present; while its effect upon the stomach abating the desire for food is to be desired, until such time arrives when food can be taken with impunity. Aside from all these advantages, the sense of taste is obtunded, both the tongue and stomach are placed in a condition resembling local anæsthesia, which is in fact, one of the most valuable, if not the most valuable point gained, since it places these organs under the control of the physician, rendering him able to administer in sufficient amounts the only remedy known to the writer that can be relied

on under plain morphia-sulphate to point of toleration, to gain the fourth point in the beginning of treatment, viz.: painless evacuation of the contents of both larger and smaller bowel.

During the first hour following the hypodermic dose of morphia, the lower bowel should be flushed with soap suds enema, care being taken to secure the reasonable evacuation of the contents of the colon before the patient is permitted to pass fully under the influence of morphine. It is well to allow one hour to intervene from the hypodermic injection of morphine, before attempting to give remedies by the stomach, at which time the patient will be placed in the condition most favorable to the swallowing and retaining castor oil in amounts sufficient to guarantee its traversing the entire length of the passive and relaxed bowel, gravitating throughout the intestinal canal by virtue of its own weight independent of peristalsis, emulsifying the intestinal contents and increasing the volume of intestinal fluids to a degree necessary to stimulate evacuation. Castor oil given as warm as the patient can swallow, in three-ounce doses in adults, can be relied on to pass throughout the intestinal tract producing no irritation nor peristalsis discernible to the patient, and after an interval of from four to six hours, free and comfortable evacuation will occur. Should emesis follow and the oil be rejected, it will be due either to the insufficient amount of morphia being given or to the dose of oil being given too soon after giving the hypodermic of morphia, in which case an additional amount of morphia must be given, or sufficient time be permitted to elapse to assure the physiological effects of the drug before repeating the dose of oil. Following the hypodermic dose of morphine, castor oil should, at all times, be given entirely alone, the stomach being in no physiological condition to digest foods of either solid or fluid consistency. Digestion for the time is arrested, while the mucous membranes of the stomach and intestines are rendered dry. This is to be remembered for its inestimable points of importance which will follow; therefore, all foods and fluids, including water, are to be withheld after giving the oil, and the patient should be permitted to rest in comfort. Plain morphia-sulphate given hypodermically in full doses renders the intestines incapable of responding with peristaltic action to the dose of oil, which gravitates throughout the passive and relaxed bowel, exerting a soothing influence by reason of its ability through its density to resist the enfeebled absorptive powers of the mucous membrane of the small intestines.

At the same time general secretion of the intestinal organs is checked or so far modified by plain morphia-sulphate that no reduction of the patient's vitality is produced by depletion from the throwing off of mucous to any great extent. The oil, as it were, acting independent of osmosis, peristalsis and absorption is sufficient guarantee to recommend its use, instead of salines in these cases, where the saving of the patient's vital powers is of paramount importance.

Complete rest and quietude should be enjoyed throughout the course of treatment. The dose of morphine should not be repeated before copious evacuations have been secured, unless pain should be present. No apprehension need be aroused should results not be secured for six or eight hours following the

administration of the oil; it is to be remembered that the oil is gravitating through the relaxed small intestines, emulsifying its contents, passing the same through the ileo-cæcal valve into the colon, while the opiate is counteracting any toxic effects from castor oil by checking absorption of the small intestine. Should it be found expedient to repeat the dose of morphia before securing evacuation, the colon should be flushed with normal salt solution to promote elimination of any oil there present.

Two or more routine treatments, including flushing of the colon and the full hypodermic of morphia to be followed at the expiration of an hour with the full three-ounce dose of castor oil, should be given to patients seen early in the course of acute appendicitis to secure the thorough cleansing of the large and small bowel, and to secure also a constant flow of non-irritating oil into the cæcum, where it can be relied on to gravitate to and penetrate into the appendix during the slightest intervals of relaxation of the organ. We can reasonably expect the oil to reach the interior of the appendix, since relaxation is secured, and also since congestion and inflammation are, for the time being, retarded by the use of morphia hypodermically. While the density of castor oil renders it capable of acting as a vehicle for the expulsion and elimination of mucous and other products of inflammation contained within the appendix, the slight movement of the colon during the process of defecation and rectal flushing is conducive to this result.

While it is impossible to outline the exact intervals of treatment in all cases, suffice to say from eight to ten ounces of castor oil should be given in pronounced acute cases in adults, with sufficient morphia to secure painless evacuation during the first three or four days of treatment; care being taken to flush the colon at six- or eight-hour intervals following the administration of oil to prevent the absorption of toxic principals.

After each season of evacuations the colon should be flushed with normal salt solution or soap suds, to secure thorough cleansing. Near the close of the hour following the repetition of morphia, one pint of normal salt solution may be slowly injected into the colon and retained. This salt solution may be repeated and retained at two- or three-hour intervals, while the patient is under the influence of morphia, if desired, to relieve the patient's thirst and sustain renal action. The mucosa of the colon being rendered clean from flushing, and dry from morphia, presents a broad plane for rapid absorption of foods and normal salt solutions. Under this method of treatment I have seen no case of retention of urine necessitating the use of the catheter, while its effect in sustaining the patient is all that can be desired.

Within an interval of four to twelve hours, during which one or two treatments are given, there results the evacuation of copious stools of foul fæcal matter of a semi-solid consistency, showing a thorough mixing of oil. In many cases the vast amount of fæcal matter eliminated is out of all proportion to the expectation of the physician, and rapidly assumes a characteristic yellow color.

At no time should the morphia be withheld during the first two or three days of treatment when pain is present, in view of hastening evacuation. Five

or six hours' time should be given the oil to travel throughout the small intestine; then should the physician fear retention of fæcal matter, distention of the gut, or absorption of toxic principals by the colon, an enema of strong salt solution may be used to hasten results.

In all acute cases the dose of morphia should be repeated within twenty-four hours, and in most cases at a shorter interval of time, to secure its constant action upon the inflamed parts and to prepare the patient for the dose of oil to follow.

This plan of treatment must be continued until confident all fæcal matter has been eliminated—a course of four or five days' duration being required in many cases—while the doses of morphia and oil must be continued in diminished amounts for several days longer to secure beneficial effects of both remedies upon the inflamed parts. The treatment can be withheld at any time to remove the so called "masking" (?) of the symptoms, or in anticipation of surgical intervention.

In all cases, save those seen in the incipient stage of engorgement where the first treatment aborts the malady, there will develop the characteristic tumor in the right iliac region. The development of this tumor is by no means indicative that surgical treatment must at once follow, since in many cases it terminates in resolution within a few days when the physical signs of the patient do not point to sepsis. Or, it is so far diminished and freed from acute inflammation to guarantee better and safer surgical treatment, while in many cases slight tenderness remains for several weeks to gradually disappear, to be followed by no "future attacks." The stools should be carefully watched at all times for the characteristic discharge of pus from the appendicular abscess.

Rectal Feeding.—Food should not be given per rectum during the first five or six days of treatment. No class of patients, however, are more adapted to this plan of nourishment than those suffering from acute appendicitis.

Taking advantage of time following the hypodermic dose of morphia, fluid foods in amounts not exceeding six ounces can be passed through the fountain syringe into the rectum, causing no peristaltic action of the gut or forcing of its contents backward into the cæcum.

Prior to rectal feeding, the colon should be flushed with soap-suds or a normal salt solution, then panopepton, coffee, milk, meat broths and whiskey or brandy may be used in any combination or proportion desired.

Subnormal Conditions.—While subnormal temperature and subnormal pulse, alternating with freakish flights of temperature and excessive diaphoresis are indicative of pus formation and absorption, this trend of symptoms has not appeared in cases put upon treatment early in the course of the disease. Yet subnormal temperature and pulse prior to rapid rise of temperature have been frequently seen to be followed by normal temperature and normal perspiration during resolution in well developed cases. I consider subnormal pulse and temperature, in the absence of freakish flights of temperature and excessive sweating, as characteristic of acute appendicitis as it is of some forms of hepatic troubles. It is fair to presume that the dryness of the intestines facilitating the absorption of cholesterin and bile salts deposited

within the gut, responsible for this subnormal state just as subnormal temperature and subnormal pulse are frequently found in cases recovering from enteric fever, independent of hæmorrhage or perforation, when an abundance of nerve waste matter—cholesterin—is thrown off with bile salts, the whole being incorporated with fæcal matter during a constipated period.

Subnormal pulse and temperature are not pathognomonic of pus formation in acute appendicitis. Under this treatment when subnormal conditions prevail it is well to withhold the oil and morphia, or give them in diminished amounts, allowing the patient beef broth and other liquid nourishment with careful rectal feeding.

Strychnine sulphate, $\frac{1}{40}$ grain with digitalin and nitroglycerin can be given hypodermically, or combined with caffeine citrate, $\frac{1}{8}$ grain, and given by the stomach, the patient getting these remedies every three or four hours until reaction is established. Strychnine sulphate $\frac{1}{40}$ grain, given either hypodermically or encapsuled at three- or four-hour intervals is a valuable tonic during the latter part of the course of treatment.

The salicylate of soda, given either by the stomach or per rectum, is contraindicated with this line of treatment, owing to rapid absorption. Great discomfort follows its use when given in antiseptic doses. Calomel, as a rule, is not indicated, except, perhaps, under special conditions that may develop in the individual case.

The carbonate of guaiacol (duotal), I have found to be of inestimable value as an intestinal antiseptic in acute appendicitis. It may be given in three- or four-grain doses every three or four hours at any and all times, throughout the course of treatment.

Turpentine in three- or four-drop doses, upon the tongue, will be found useful in many cases, where dryness of the tongue predominates.

The ice-bag should rest upon a fold of either flannel or cotton cloth when applied to the abdominal wall, and not be permitted to come in contact with the patient, unless it is protected by some sort of thin covering in addition to its rubber surface.

Too much care and attention cannot be taken in returning to stomach feeding, beef broth, panopepton and other meat broths being first permissible. Milk should be classed as solid food here, as it is liable to form curd. Since rectal feeding is so admirably adapted to these cases, there is scarcely any excuse for giving solid foods too early during convalescence.

Morphia should be discontinued upon the return to stomach feeding. Tincture opium and castor oil should be given at this time at least once daily, if pain be present, in amounts to secure evacuation and cleansing of the bowels, with enemata to facilitate results, and oil should be continued at gradually lengthened intervals until all tenderness of the parts have disappeared. Pastry foods of all sorts should be avoided until complete recovery has been established.

In brief recapitulation, I would say, the colon should be cleansed with soapsuds or normal salt solution after each evacuation, and prior to repeating the

hypodermic dose of morphia. The patient may then be permitted to enjoy a short season of rest, or the morphia repeated as the exigency of the case demands.

Near the close of the hour following morphia hypodermically, food may be passed into the rectum, through a small bulb attached to an ordinary fountain syringe. Shortly following the rectal feeding, the dose of oil may be given, after which the patient should be encouraged to rest until aroused by the desire to defecate. While I have found it necessary in some cases to withhold water from the stomach until the symptoms point to resolution, yet hot water may be given in selected cases, at intervals when it is least calculated to cause emesis, and given freely in the later stages of the disease and during convalescence with decided advantage, relieving pain and tenderness of the stomach and affected parts.

THE CLARIFICATION OF OUR CONCEPTS CONCERNING HYSTERIA.

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The recent discussion at the Paris Neurological Society[1] has done much to give precision to the vague conception so unfortunately attached to the word hysteria. It was in 1901 that the Society, after hearing the astonishing definition of Babinski,[2] began the enquiry which has fructified in the conclusions which now emerge after the elimination of poorly observed cases, clouded reasoning and ill-digested theories.

The suggestions at the root of those symptoms of hysteria formerly believed to be autochthonous and durable, and termed stigmata, are generally, though not always, of medical origin. It is very significant that Bernheim[3] for fifteen and Babinski[4] for ten years have never seen hemianæsthesia, contracted visual fields, dyscromatopsia or monocular poliopia, except in patients previously examined medically. The mode of genesis of these symptoms was first indicated by Bernheim[5]; and the writer has recently presented the theme in a translation of his communication before the Congress of French Neurologists, at Lille[6]. Medico-legal examples in the making have recently been adduced by Brissaud,[7] as, for instance, that where Dupinet, who had found no hemianæsthesia in a workman after an accident, saw it produced by the examination of another expert. It is impossible, however, to prove a universal negative; and to that extent Déjerine and Raymond are justified in believing that undoubted hysterical symptoms may arise independently of immediate suggestion. But it must be remembered that hemiplegia of organic origin is a familiar sight, and that to the lay mind palsy connotes insensibility. Hence it is not astonishing that a man who believes a limb incapacitated, believes it also insensitive; this, however, is a suggestion. The discovery of basal suggestions in hysteria is proportional to skill in psycho-analysis in genuine cases, and to detective shrewdness in cases arising from mythomania.[8]

Many so-called hystericals are, in reality, merely mystifiers, more or less

conscious of their deviation from straightforward action. The following cases are examples:—

A young girl[9] announced that on a certain day and hour she would die. When the time came she feigned death, resisting with astonishing fortitude all the stimuli used to awaken her from her apparent state of catalepsy or coma. This comedy lasted three days; then she arose and dressed herself, pretending to come out of a dream, and amused herself with the stupefaction of her family and friends. When interrogated by her doctor, she confessed her trick and said that she had never been so happy as she was while watching the efforts, threats and prayers of those around her. In spite of the confession the same scene, more or less varied, occurred on ten other occasions, although she appeared to be a young woman of good heart and intelligence.

A second case is that of a man in a hospital who confessed to concealing a hypodermic syringe in his rectum; and this was not all, for in a moment of exasperation, an evacuation revealed two.[10]

Such cases have contributed largely to the confusion of our conception of hysteria. They must be eliminated from a discussion of its nature. So also must be excluded abnormalities of the tendon, skin and pupil reflexes, which are not modifiable by suggestion.

Urticaria, dermatographia, eruptions, œdema, hæmorrhages, ulcers, gangrene, and other circulatory or trophic perturbations[11] arise from chemical or structural abnormalities, whether in suggestible individuals or not, and have nothing to do with hysteria; nor is the temperature modifiable by suggestion; and the urinary, sudoriferous, and salivary secretions[12] are so only slightly rarely and only insofar as the emotional attitude may be perturbed by a suggestion.[13]

The foregoing assertions must not be misinterpreted; for it must be remembered that the tendon reflexes may be suppressed by voluntary muscular contraction, and the cutaneous reflexes, such as that to tickling, may be inhibited by a strong effort of the will.

It must not be forgotten that many intoxicated states which paralyze the neurones which govern the reflexes also necessarily interfere with the psyche, and give rise among other symptoms to many of hysterical type. This by no means means the modification of reflexes by the hysterical symptoms; both are effects of a common cause and either may occur independently in accordance with the preponderance of the intoxication upon one or other part of the nervous system.

Many maintain that psychoneuroses other than hysteria are amenable to suggestion, Déjerine, for example, citing the false gastropaths, whom he calls neurasthenics. The writer has elsewhere[14] endeavored to elucidate this source of error, and to show how a false belief in one's inability to digest, whether implanted by medical suggestion or otherwise (*i. e.*, a hysterical fixed idea), produces asthenia by slow starvation on account of the malassimilation caused by worry that food which has been eaten may disagree. The state induced is a secondary neurasthesia, and, of course, demands the Wier Mitchell treatment; but the initial cause, the false idea, must be removed by phychotherapy, and unless so removed may again cause failure of nutrition.

Patients suffering from mental debility, dream-like states, hebephrenia and other forms of dementia præcox, mental confusion, states[15] of emotional perversion, etc., insofar as they are suggestible, are hystericals; but the whole syndrome cannot be removed by suggestion, as it can in cases of uncomplicated hysteria. For the differential characters of such states, I must again refer the reader elsewhere.[16] The victims of what has variously been called cerebral neurasthenia, idio-obsessive psychosis, *maladie de doubte, délire de toucher* and latterly, psychasthenia are the antitheses of the hysterical, though many of their symptoms may be imitated by suggestion, and so removed. The essential psychasthenic characters, however, do not accompany a symptom simulated in this way. I cannot better contrast these characters than in the following extract from *International Clinics*:[17]

"The very important diagnosis between hysteria and psychasthenia depends upon the following: First, as to fixed ideas, their duration in hysteria tends to be long; for, though they are easily buried and forgotten, they are resuscitated with great ease and infallibility, whereas in the psychasthenic the fixed ideas are very mobile, but keep recurring voluntarily, and indeed become cherished parts of the individual, and are far more difficult to eradicate than those of the hysteric. Second, hysterical ideas are evoked by well-defined and not numerous associations, 'suggestions'; in the psychasthenic, they are often evoked by apparently irrelevant associations, which are searched for by the patient: thus the 'points de repère' are very numerous, cannot be predicted with certainty, and are often mere excuses for crises of rumination or tics. Third, in the hysteric, the ideas tend to become kinetic; whereas the psychasthenic's constant state of uncertainty causes him to oscillate between 'I would' and 'I would not.' Inhibition is too strong to allow an act, but not strong enough to dismiss the obsession.

"The anorexia in hysterics is derived from a simple idea not to eat, suggested by imitation, extraneously or in a dream. Cases of true loss of the feeling of hunger are not hysterical, but accord with the 'anorexia mentale' of Lesègue,[18] in whose days hysteria was poorly differentiated. The anorexia of the psychasthenic is secondary to an obsession, usually of shame of body, of being fat, or of the act of eating, and is accompanied by numerous stigmata of the psychasthenic state."[19]

It must, however, be remembered that the neurasthenic state favors suggestibility, though it is not of the dynamic kind, which the hysterical manifests, but is of a passive, aboulic character.

From the foregoing considerations it follows: (1) that from hysteria must be eliminated cases of trickery, simulation and mythomania; (2) that to the syndrome of hysteria do not belong modifications of reflectivity; (3) that the vasomotor and trophic neuroses have nothing to do with hysteria and (4) that other psychoneurotic states such as psychasthenia, neurasthenia, cenesthopathia, mental debility, and confusion, the early phases of dementia præcox, dream-like states, and emotional perversions must not be confounded with hysteria.

Having eliminated these negative characters, there remain the very definite conclusions which I quote again from *International Clinics*:[20]

"1. That all the symptoms which may legitimately be included under hysteria are imposed by suggestion.

"2. That the state of suggestibility derives from (a) faulty education, tending to perpetuate and fortify the natural suggestibility of the child; (b) cerebral modifications due to organic causes, the action of which necessarily varies among individuals in accordance with (c) the hereditary constitution."

For clarification of the issue we are indebted to Babinski and the discussions which his pertinacity has inspired in the Paris Neurological Society; and for a full account of the data, the reader is referred to the reports of these.[21]

Space forbids even a statement of the therapeutics and medico-legal corollaries of these conclusions. The latter were alluded to in the MONTHLY CYCLOPÆDIA of November last.[22] The former should clarify our understanding of much of the pseudo-scientific psychotherapy now becoming so rampant.

A clear conception of the psychological mechanism of hysteria will add enormously to the power of medical men in controlling the psychoneurotic element present in so many diseased conditions.

The hit-or-miss psychotherapy-of-encouragement in many cases does more harm than good. It is as dangerous therapeutically as digitalis or the knife in hands ignorant of pathology. The delicate judgments upon which the treatment depends certainly cannot be entrusted to the untrained. However supple-witted may be a pedagogue, priest or mental healer, he lacks the broad training in the fundamentals of clinical medicine in which, unfortunately, some men who specialize too early in their career are also deficient. Accordingly, the therapy of hysteria as well as of the other psychoneuroses can be intrusted with safety only to the physician, and he in turn must rise to the occasion by studying the pathogenesis of these as he now does that of arteriosclerosis or glandular insufficiency. In the meanwhile, he must have recourse for advice, and sometimes for direction, to the few men who have already devoted themselves to this study.

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A FEW PRACTICAL APPLICATIONS OF THE NEWEST PRINCIPLES INTRODUCED BY DR. SAJOUS.[1]

BY J. MADISON TAYLOR, B.A., M.D.,

PHILADELPHIA.

THE work to which Dr. Sajous has given his attention for over twenty years may be characterized briefly as a new interpretation of the scientific factors in all branches of medicine, direct and contributory, calculated to place the clinician on a basis of precision and confidence. He, in common with all other alert thinkers, is painfully aware that there is not only much confusion and apparent contradiction in existing teachings, but also that we have by no means yet learned a large number of truths most essential to the solution of daily recurring problems.

To be aware of what we do not know and to estimate our own shortcomings with a due sense of proportion, to state these omissions with logic and candor, is in any stage of scientific evolution as important as isolated discoveries. Not only so, but those discoveries are of greatest utility which make for the achievement of a consistent conception of the many brilliant findings of others, which may, however, stand so far apart, may be so involved in less essential details, that they fail to fuse into the scheme of logically related facts. The greatest possible of discoveries, then, are those which put into our hands unerring laws of action, or conduct, or thought, and the foundations of which are solidly established scientific facts.

The first thing demanded of any clinician is not alone whether the patient presents a well-defined picture of functional derangement, of infection or malignant disease, but also to determine to what extent our drugs are able to antagonize morbific agencies. Every wise practitioner unconsciously formulates such laws in his mind as he has evolved from his own experience. He uses the classic or current rules for general diagnosis and the action of remedies, but none is more vividly conscious than he, nowadays, that his cherished rules frequently conflict with his own observations and do not appeal to logical reasoning.

He is confronted by two sources of confusion: 1, the misleading influence of those who, working within the narrow field of laboratory work, make dog-

[1] Read by request before the North Branch of the Philadelphia County Medical Society, February 18, 1909.

matic statements which threaten the integrity of well-established beliefs, leaving him high and dry on the shores of doubt; and 2, the exploitation of profoundly abstruse and complex diagnostic methods and forms of treatment of such extreme specialization in technique that he, the practitioner, can make little use of them.

It is precisely in this connection that Sajous's labors will prove invaluable to the profession. He urges that the prevailing confusion and the growing complexity in every branch is the inevitable result of the absence of precise knowledge concerning certain most important organs in all the conjectures of investigators, clinicians, etc. Investigators and clinicians find themselves blocked at every step, and obliged to account theoretically for a multitude of phenomena which these organs awaken. He has shown, in his work on the "Internal Secretions," that as soon as the functions he has ascribed, after painstaking research, to the adrenals, the thyroid, the pancreas, etc., are taken into account, all confusion disappears and solidly established facts fall into line, so to say, of their own accord. And more, he has furnished not only the key to the stronghold of our defenses against disease by showing that those identical organs, whose functions he has brought to light, are those which, through the entire animal scale, protect the body against poisons, but he has also shown that the physician can control this mechanism at will, with the commonplace remedies in daily use. Confusion, hesitation and empiricism is thus replaced by precision, timely intervention and scientific accuracy.

The results, though Dr. Sajous's labors may be said to be still in their infancy, do not belie the expectations that such contributions to our knowledge should fulfil. It is of almost daily occurrence now to hear of some case in which his views, accepted as a last resort, have yielded unexpected results in diseases of various kinds. It is my purpose, in this communication, to show how his conceptions work out in practice, by citing a few cases of epilepsy in childhood. These are simply three of the many which my case-books furnish in which the results have coincided with his expectations.

No derangement or disease which afflicts humanity has called out a greater multiplicity of effort than epilepsy, especially when occurring in childhood. Without attempting to review the current beliefs or to estimate the enormous importance of recorded observations, let us bear in mind that Sajous has done his uttermost to utilize all available knowledge. He arrives at personal conclusions, however, which make it possible to see much deeper into causal agencies and to show how they may be overcome and, in most instances, a cure effected. "Literature shows plainly," he writes, "that the dominant feature in the pathogenesis of convulsions is the impairment of metabolism, and that the spasmogenic agent is some toxic agent in the blood-stream. Pathologic variations of vasomotor action, due more or less to a morbid condition of the blood, have also asserted themselves so strikingly in the production of fits that some observers have been inclined to regard them as the foundation of the whole symptom-complex. Again, the destruction of the spasmogenic agent has been urged by some as the only reasonable principle of cure in opposition to the

use of bromides and chloral, which tend to increase its formation in the blood-stream."

A common feature in all cases of epilepsy is (as Spitzka pointed out in 1881) "explosive activity of an unduly irritable vasomotor center," and most neurologists regard epilepsy as a "functional vasomotor disease." Sajous reaches the fundamental conclusion, therefore, that we have as "the cause of convulsions a toxic in the blood capable of producing a high vascular tension and thereby excessive hyperæmia of the cortex. This hyperæmia is a recognized cause of the epileptic seizures; the exciting factor is a poison formed in the tissues, and our chief aim, therefore, should be to destroy that poison and to prevent its further formation. Not only do bromides not assist in this essential process, they hinder it; they act chiefly as depressants to the circulation, inducing lowered temperature, lowered oxidation, even asphyxia; further, they tend to paralyze the adrenal system whose efficiency is essential to the destruction and elimination of the toxics which induce the symptom-complex.

It is the adrenal secretion, which, as Sajous has shown, takes up the oxygen of the air, passes it on to the tissues (as the albuminous constituent of the hæmoglobin) and sustains the whole process of oxidation, and also the antitoxic functions of the organism. Bromides and the whole group of depressants exert the effect of obtunding the sensitiveness of the center which governs these all-important functions, hence they are directly contraindicated. As to the cure of the disease, he insists on the use solely of drugs which enhance oxidation, and, therefore, the antitoxic functions of the body. He also holds that it is equally important to employ all those contributory measures which limit the production of irritating toxics from food, fatigue, etc., *e. g.*, the flesh foods which contain the most dangerous factors.

The three illustrative cases I have referred to will show the practical bearing of Sajous' views:—

E. B. Age seven years. A large, well grown, only child. Birth normal and no incident worthy of remark in early history, except a digestive upset at 10 months. Measles with congestion of the lungs occurred, followed by chicken-pox, followed by rötheln. These were the only infections and were mild. The digestion was always more or less vulnerable, needing a little attention from time to time. Bowels rather slow.

A little less than a year ago (August, 1907) the mother noticed slight attacks of gulping, staring and slight confusion also, occurring only rarely. At the same time she became restless at night. She was treated for "worms" and indigestion, but attacks grew worse. October 15, 1907, adenoids were removed, also tonsils, which seemed to afford no improvement, except that the "choked-up feeling" formerly complained of ceased, and also the susceptibility to "colds." From the first of January, 1908, there began a series of definite convulsions, one or two a week, gradually growing more severe and frequent, nearly always at night. Despite all treatment—and several of the leading specialists in Boston were consulted—these convulsive attacks increased in number and severity until she would have sometimes 30 or more in one night.

My first observation of the child was just eleven months after the first

attack. She was under the care of another physician, and seventeen miles from Bar Harbor, where I was then staying. I was asked suddenly to go and see this child, and on learning that Dr. Philips, a prominent practitioner of the place, was in attendance, I called him on the 'phone and learned that he had seen the child within a few hours and regarded her as moribund. The convulsions followed one another so rapidly that there was almost no intermission; there was incontinence of urine and fæces, stupor, extremely weak circulation; in short, he regarded the end as near. The family insisted upon my seeing the child, however, which I did. I found the condition somewhat better and brought her to the hospital. I had called Dr. Sajous in consultation at once, and besides the purgation I had ordered, he advised $\frac{1}{30}$ grain of calomel every three hours, and later $\frac{1}{4}$ grain doses of dessiccated thyroid, three times a day, also physiologic salt solution taken freely as a beverage. The progress was steady and rapid. The thyroid was increased to $\frac{1}{2}$ grain doses, thrice daily and no more, and this again was gradually reduced as the convulsions grew rarer. These ceased after the first month of treatment and have never recurred, though seven months have now elapsed. She is now (February 15, 1909), in all ways a healthy, vigorous child, and was unquestionably saved from death.

M. K. Aged two years. First child. Healthy, sober parents. No special incident at birth. Breast-fed until fifteen months. Digestion and color good. Well nourished.

Attacks noticed first at the age of about two weeks; at one month a violent one occurred lasting ten minutes; stiffened all over, open and shut hands and feet, grew very red, eyes stared and "stuck out"; later grew white and limp, then yawned and slept some ten or fifteen minutes. At first the attacks occurred two or three times a week; later every other day, exhibiting nearly similar phenomena. Also the child was apathetic, listless, made no effort to stand, or to grasp things; could not learn to sit up—in short, exhibited no normal initiative.

The child was wholly unintelligent. Flabby muscles; saliva dribbled from the mouth; no knee jerk; bolted food; made no effort at mastication. All teeth came on time. Child often screamed two or three times in rapid succession. Rated as a middle or low grade epileptic idiot.

Put under treatment December 23, 1908. Calomel gr. $\frac{1}{20}$, t.i.d. for one week, then desiccated thyroid, gr. $\frac{1}{4}$, twice daily; increased to $\frac{1}{2}$ gr., thrice daily. Also back rubbed. To be fed by mother slowly and compelled to chew. Although but seven weeks have elapsed since this treatment was begun, there has been marked and rapid improvement in all particulars. The attacks are much rarer and less severe; the motor power is greatly increased; the child sits alone and is anxious to stand; crawls a little. Notices almost all happenings; growing steadily in vigor and intelligence.

Miss A. B. C. Now about sixteen years of age. Of healthy stock; brothers and sisters in good health. Always had every opportunity for vigorous living and the best medical attention. When about eight or nine years old began to have slight attacks which gradually developed into *petit mal*. Until 1900 and notwithstanding the skilled use of all familiar resources, these attacks

steadily increased. A careful record has been kept by her physician, Dr. H. T. Baldwin, of Chestnut Hill, Mass., and with charts for the years 1906, 1907 and 1908, which serve to show with great exactness the steady advance under small doses of thyroid and the diet measures, including saline beverage, advocated by Dr. Sajous.

As is well known, nothing is more obdurate than *petit mal.* Dr. Baldwin writes: "The tabulation shows how attacks increased for six years before coming under your care regularly. During these years she was under various forms of bromide, and from 1900 to 1903 seemed to be slowly improving, and then began gradually to fall back, toward the end of 1906. You started your treatment in the summer of 1906 and this chart shows the result so clearly that no comment is needed. At the same time that the number of attacks diminished their character also lessened in severity until a stranger would not notice anything amiss if he saw her during an attack. Her health is also now much better and she is living a life more like other girls. Her catamenia appeared in the autumn of 1908 without any marked feature, and she now joins fully in all her social opportunities."

It is interesting to note that for a long time, many years, the attacks were complicated by a hysteroid element, as is also a common feature. The element of dread serves not only to exaggerate slight attacks into larger ones, but possibly to precipitate an attack from nothing. As was perfectly natural, her mother, although a woman of abundant wisdom, at first allowed her solicitude to be over-readily seen and this served to aggravate the condition.

All contributing measures were employed from the first, and, while I was a little more positive in cutting out red meats, this would have made less difference than usual, because it is permissible, often desirable, to use a diet fuller in albuminoids while taking thyroid.

The uniform progress toward health can be attributed wholly to the medicinal treatment, which met the precise needs of the organism.

The simplifying influence of Dr. Sajous's discoveries as to the functions of the ductless glands and other body structures is clearly shown by these cases. All three were due to the retention of excrementitious substances in the blood, and the irritating action of these poisons upon the spasmogenic centers—the indications, of course, being to destroy these poisons. Drugs known to do so by increasing the antitoxic substances through the ductless glands—mercury, and dessicated thyroid—were administered. To assist this antitoxic process the osmotic properties of the blood, physiologic saline solution was given as beverage. On the other hand, the sources of intoxication were as much as possible eliminated by purgation and dietetic measures calculated to prevent the accumulation in the blood-stream of any toxic wastes, i.e., wastes imperfectly prepared for prompt elimination by the kidneys.

Spratling has remarked that all epileptics tend to bolt their food. This certainly is my experience, especially among children. They are also voracious feeders. Hence the intestines are constantly overburdened with putrefying substances ready to vitiate the blood and aggravate the trouble. Slow and thorough mastication must be taught and enforced; children should be fed by

hand. Even milk should be fed from a teaspoon to secure insalivation and to prevent formation of curd masses. Cereals and also all foods must be held in the mouth an appreciable length of time. Rewards or punishments should be employed to compel right habit-formation. A laxative is frequently necessary. Castor oil is most thorough and bland. A pinch of table-salt swallowed along with a glassful of water on waking frequently suffices. Colonic saline irrigations are helpful, not only to cleanse the bowel but to assist by imbibition, the irrigation of the adjacent structures. To check voracity for nourishing food it is a good plan to give raw fruit as a first course. Soups are pernicious. They overburden the stomach and, when made of meats, introduce waste products, which stimulate and disturb. Vegetable purees are not adequately insalivated. The foods should be confined chiefly to vegetables, fruits, milk and milk preparations, especially the lactacid milks. When the habits of mastication are well formed a larger dietary can be permitted, but never the red meats.

Cyclopædia of Current Literature

ASTHMA: ITS CAUSE AND TREATMENT.

There are three causative factors in asthma: (1) the presence of hypersensitive areas in the nasal mucosa or a special sensitiveness of the gastric mucosa; (2) a special irritant of the pulmonary nervous system which constitutes the asthmatic idiosyncrasy with which the patient was born; (3) the presence of an irritant, *e.g.*, odors, dust, smoke, dietetic errors, etc.

Treatment follows according to this classification. In a given paroxysm inquiry should be made as to the last meal, and any obvious exciting cause removed. If the patient is in a bad atmosphere, he should be removed. He should be gotten out of bed, and bolstered up in an armchair before a cushioned table, on which he may rest his elbows and throw himself forward. Ipecac powder will occasionally cut short an attack and permit of a good night. Some patients can get the same relief from pipe tobacco, but all such remedies must be used early. Plain, strong, hot coffee is one of the surest remedies. Alcohol, cocaine and chloroform are all serviceable, but the danger of habit formation must not be forgotten. Stramonium smoking and nitre paper fumes are often efficient. The author's experience with the iodide of potash has been disappointing. The food should be nutritious and easily digestible. Asthmatics should dine early, so as to retire on empty stomachs. Intranasal abnormalities must be rectified. For ordinary intranasal irrigation the normal salines are better than the usual antiseptics employed for this purpose. W. Lloyd (British Medical Journal, January 16, 1909).

CARCINOMA, EXCITATION OF THE LEUCOCYTES IN CASES OF.

Attention is directed by the authors to the possibility of cancer being the local manifestation of a disease which is dependent on changes in the blood, difficult to account for, but yet so constant that their association with the

neoplasm cannot be disregarded. This consideration led to the application of a method for distinguishing dead leucocytes from living ones by the fact that live cells resting on agar jelly that contains, besides neutralized sodium citrate and sodium chloride, a certain proportion of methylene-blue and atropine sulphate, will exhibit exaggerated amœboid movements. The stain is the most important constituent of this excitant. In neutral jelly the excitation somewhat inconstantly occurs without addition of the alkaloid, but on the addition of an alkali in amount proportionate to the temperature of the room sufficient to produce diffusion of the stain, marked excitation occurs only when the alkaloid is present. Certain alkaloid-like toxæmic symptoms found in cases of cancer suggested that in the blood of cancer patients there might be some substance which, in the presence of an alkaline plasma, acts as a stimulant to the normal cells, thereby in some way giving rise to the new growth. The authors had in the wards a patient with carcinoma of the pylorus, who, while not taking any narcotics, presented toxæmic symptoms resembling those that might be produced by an alkaloidal poison. Ross had previously ascertained that the plasma of persons known to be suffering from carcinoma did not comparatively shorten the lives of the leucocytes of healthy persons, in contradistinction to the effects produced by the plasma of persons suffering from several infective diseases—this fact indicating that cancer is not an infective disease.

The authors determined to ascertain whether the plasma of cancer patients contained any excitant, pathologic in character, for the leucocytes of healthy persons. A large number of previous examinations had shown that leucocytes mixed with the citrated plasma of healthy persons never displayed exaggerated movements. The mixture of the citrated plasma of the cancer patient's blood with one-eighth of its volume of the blood of a healthy person, showed the remarkable movements which were more marked than those seen when the artificial atropine excitant was used. It seemed, therefore, that there was actually a pathologic excitant in the blood of this cancer patient. Nine other cancer cases consequently were similarly investigated, the results corresponding in every way. The authors, therefore, consider that in cancer cases there may be present some substance resembling an alkaloid in its action, which, in the presence of an alkaline plasma, excites the amœboid movements of healthy leucocytes. They further point out that methylene-blue is a coal-tar derivative, and that cancer is common in coal-tar workers. They suggest that this reaction, if confirmed by further investigation, may prove useful in the differential diagnosis of cancer. C. J. Macalister and H. C. Ross (Lancet, January 16, 1909).

CHOREA, NASOPHARYNGEAL ORIGIN OF.

The author found that a severe chorea in a girl of nine subsided at once after treatment of inflamed tonsils and adenoids. This occurred twelve years ago, and since then he has frequently found indications for local treatment in the throat of cases of chorea, and invariably the effect was most striking in the prompt subsidence of the chorea. The nasopharynx is the source of infection of various kinds, especially for the rheumatism infection and for chorea. Enlarged tonsils and adenoids do not always become infected,

and the infection may be of varying virulence and the soil of varying receptiveness, but the influence on the chorea of suitable treatment of the throat and nose will convince the most skeptical, he says, of the unmistakable connection between them. L. de Ponthiere (Annales de médicine et chirurgie infantiles, November 1, 1908; Journal of the American Medical Association, December 19, 1908).

CONJUNCTIVAL TUBERCULIN TEST.

From a study of 1087 conjunctival tuberculin tests by a uniform method, the writer concludes that the test performed with weak solutions by a single instillation has some value in confirming the presence of tuberculosis in the early stages. It has little value in confirmation when the symptoms of tuberculosis are only suspicions. Its value in distinguishing "active latent" from healed tuberculosis in apparently healthy persons has not yet been determined.

Repetition of the test in the same eye has no advantage over the cutaneous and subcutaneous tests in the percentage of reactions produced, and may be misleading and dangerous. Repetition in the other eye by the author's method offers so little advantage that it cannot be recommended. The conjunctival reaction is unreliable for prognosis. Used with the proper precautions, danger to the eye is slight, and need not preclude the test when other methods are inapplicable, as when fever is present. It should be restricted to adults, since the cutaneous test has been found equally valuable for children and is harmless.

The cutaneous test by the simultaneous use of dilute and strong tuberculin offers a method of detecting at once or excluding tuberculous infection with no danger or inconvenience. Experience is needed to show the value of this method.

The subcutaneous test should be restricted to those cases in which a focal reaction at the site of the disease is desired, and when the other tests result negatively. E. R. Baldwin (Journal of the American Medical Association, February 20, 1909).

NASAL AFFECTIONS, RUBBER BALL TREATMENT OF.

The author applies the general principles of resting an inflamed part and keeping further irritation away from it. The nasal mucosa is peculiarly exposed to thermic, mechanic and chemic irritation—its physiologic task is to arrest such irritating agents to prevent their further invasion of the air passages below. If the nasal mucosa becomes inflamed, a vicious circle results, constantly growing worse. Healing is possible by removing all possibility of further irritation and giving the inflamed mucosa a chance to heal. This the author accomplishes by the use of a ball of very soft rubber, about 12 millimeters in diameter, pushed into the nostril to occlude the passage. He has the ball introduced alternately into the nostrils and left in place for half to three-quarters of an hour, several times a day. There is a small handle to the ball, and this is all that shows. The ball not only keeps away irritation and rests the mucosa, but it induces local hyperæmia and a warmer temperature, and the patient experiences great relief, while healing rapidly proceeds. Sprenger (Berliner klinische Wochenschrift, November 16, 1908; Journal of the American Medical Association, January 2, 1909).

OUR CONTEMPORARIES.

The January issue of the *American Journal of Clinical Medicine* is entitled to great praise. It inaugurates several changes, and new and important features which will tend to make the journal most valuable to its readers. Among the articles we note: "How I Treat Pulmonary Tuberculosis," by W. F. Waugh; "The Social Evil and Its Remedies," by G. F. Lydston; "The Treatment of Typhoid Fever from Beginning to End," by C. F. Wahrer; "Typhoid Fever in Hospital and Private Practice," by A. V. Lyon; "Bismuth-Paste Treatment of Rectal Fistula," by J. R. Pennington; "A Little Journey to the Home of Benjamin Rush," by G. F. Butler; "The Physician as a Business Man," by G. G. Burdick.

An unusual feature of medical journalism will be presented in the March issue of the *American Journal of Surgery*. The entire original subject-matter in this issue will be contributed by New York City surgeons of note, and a number of new operations will be first presented therein. Among the contributions to appear are: "A New and Simple Method of Intestinal Anastomosis" (illustrated), by Howard Lilienthal, M.D., Attending Surgeon, Mt. Sinai Hospital; "Sigmoiditis and Perisigmoiditis," by James P. Tuttle, M.D., Professor of Rectal Surgery, New York Polyclinic, New York; "Cancer of the Breast," by Willy Meyer, M.D., Professor of Surgery, Post-Graduate Medical School, and Attending Surgeon of German Hospital, New York; "The Localization and Removal of Foreign Bodies with Especial Reference to Those in the Skeletal Tissues" (illustrated), by Dr. Walter M. Brickner, Assistant Adjunct Surgeon, Mt. Sinai Hospital, and Editor-in-Chief, *American Journal of Surgery*, New York; "Dislocation of the Cervical Vertebræ" (illustrated), by James P. Warbasse, M.D., Special Editor, *American Journal of Surgery*, and Attending Surgeon to Seney and German Hospitals, Brooklyn.

Book Reviews

Diseases of the Nervous System. For the General Practitioner and Student. By Alfred Gordon, A.M., M.D. (Paris), Member of the American Neurological Association, etc., etc. 130 Illustrations. Philadelphia: P. Blakiston's Son & Company, 1908.

This book of Dr. Gordon's will be found of particular value to the general practitioner and student. Its small size and convenient form recommend it especially to those who wish to study the subject without having had much previous familiarity with it. It is, strictly speaking, an outline with sufficient illustration for its avowed purpose, and arranged with excellent system, having black letter headings for important points, excellent typical illustrations, and omitting undue controversy on mooted points, or excessive elaboration of interesting points, which is not always profitable in obtaining a clear first impression. It omits also that excessive presentation so often found in microscopic tissues; yet it presents a fair number of typical clinical gross appearances. Dr. Gordon's training is especially thorough, he being a graduate of the University of Paris and of the University of Berne. He was interne at the Salpetriére under Charcot, and studied under Brissaud, Dejerine, Marie, Ballet, Mangan, Voisin and Joffroy. His familiarity with mental disease has been amplified by acting as examiner of the insane at the Philadelphia Hospital for several years, and also lecturing at the Jefferson College on neurology and neuropathology, and at Blockley and the Philadelphia Hospital on clinical psychiatry.—J. M. T.

An Alabama Student and Other Biographical Essays. By William Osler, M.D., F.R.S., Regius Professor of Medicine, Oxford; Honorary Professor of Medicine, Johns Hopkins University, Baltimore. Oxford University Press, American Branch, New York: 29-35 West Thirty-second Street; London: Henry Frowde. 1908.

History records the names of many men whose lives have been notable in one way or another. Nothing stimulates the lagging energies of the physician more than the knowledge of the deeds of great men of the same profession. To picture a noble character in its true colors is a faculty which the author well possesses, and in the present volume, which is composed of a series of addresses, this ability is very evident.

The title of the book was suggested by the life of an Alabama student, Dr. John Y. Bassett, of Huntsville, "a man of whom you have never heard, whose name is not written on the scroll of fame, but who heard the call and forsook all and followed his ideal." He left his wife and family, whom he dearly loved, and suffered hardships, because of his devotion to his profession, and because of his determination to perfect himself for his chosen work. While looking over the first two volumes of Fenner's Southern Medical Reports,

issued in 1849-50 and 1850-51, the author became impressed with several articles written by this interesting character, and the investigation of his life followed.

Another man, forming the subject of rather a lengthy, but very interesting essay, is Elisha Bartlett—A Rhode Island philosopher—"who left no deep impression on local history or institutions." The calibre of the man and his lofty ideals is shown in the following expression of his object from his translating of the "Lives of Eminent French Physicians": "First, the delineation of distinguished professional character and attainment, and, secondly, by the influence of such high examples to awaken in the younger members of the medical body a more devoted and worthy emulation of the great masters of our art."

The subjects of other addresses are: Thomas Dover, Physician and Buccaneer; John Keats, the Apothecary Poet; Oliver Wendell Holmes; John Locke as a Physician; A Backwood Physiologist, being an interesting account of the work of Surgeon Beaumont; The Influence of Louis on American Medicine; William Pepper; Alfred Stille; Sir Thomas Browne; Fracastorius; and Harvey and His Discovery.

The author's keen sense of observation and his ability to collect historical facts, his marked degree of earnestness, and his easy style of writing, make this series of essays very interesting as well as instructive.—R. B. S.

The Problem of Age, Growth and Death. Based on Lectures at the Lowell Institute. By Charles S. Minot, LL.D. (Yale, Toronto); D.Sc. (Oxford); James Stillman, Professor of Comparative Anatomy in Harvard Medical School. Illustrated. New York and London: G. B. Putnam's Sons, Knickerbocker Press, 1908.

This book is dedicated to Angelo Mosso, Professor of Physiology at the University of Turin, and the introductory chapter is addressed to him, in which the general scope and purpose of the book is set forth. We cannot do better than quote from this introduction the paragraph which makes clear the author's intent, which, it may be well to mention, is admirably realized in the text in a most interesting and agreeable fashion:—

"Form the age of zero at the moment of sexual impregnation, animals and plants, broadly speaking, both pass through a series of changes until, barring accidents, they reach their limit of life; by which we mean the maximum longevity achieved by each individual under the optimum of conditions. Organisms are created young and grow old, and the old produce young successors. Senescence is a problem of living matter, and, so far as known, has no parallel in non-living matter. It is an essential feature of life. It finds its most familiar expression in the gradual loss of the functional powers of the organism, its end is death. My book is the outcome of an attempt to learn something as to the essential character and the cause of that loss. . . . . I can make no pretense of having solved the manifold problems of senescence, but I hope that you will at least find some of them more clearly formulated than hitherto, and also some real additions to our positive knowledge."

—J. M. T.

Blood Examination in Surgical Diagnosis. A Practical Study of Its Scope and Technic. By Ira S. Wile, M.D., New York. Duodecimo; 161 Pages; 35 Illustrations and 1 Double-page Colored Plate. New York: Surgery Publishing Company, 1908. Cloth, price, $2.00; Oil Cloth for Laboratory Use, $2.50; De Luxe, Ooze Leather, price, $3.00.

The importance of the blood picture in the determination of the various infections is indicated by the growing frequency of blood examinations. The physician many times relies upon such an examination to corroborate his diagnosis, and the surgeon often places dependency upon it to determine the presence or the extent of suppurative conditions.

The purpose of the book under review is to cover briefly surgical hæmatology. The author outlines the equipment for this special line of work, and then takes up the technic of the various procedures in the examination of the blood. The changes in the different diseases is also pointed out. A noteworthy effort is made to overcome the confusion which has long interfered with the definite or the satisfactory differentiation of certain elements of the blood. This appears clear in theory, but the difficulty comes in the examination of the actual specimen, when the cells causing dispute do not always harmonize with the description in the text. Authorities of equal prominence have many times disagreed on the proper classification of certain mononuclear cells, being unable to determine from the size and the staining properties of the cell whether it is a large-small or a small-large mononuclear leucocyte. Nevertheless, the author's classification is a good one, and may help to overcome certain of the difficulties.

The marginal notes in red are handy and worthy of mention. While the double-page colored plate of six blood affections is well executed, the drawings of the various cells throughout the book are crude and often not very distinct. The text frequently lacks in detail, due no doubt to limited space, but the subject appears well enough covered to make this small volume of some value to the surgeon as well as to the physician. Mention is made of a few typographical errors which have crept in.—R. B. S.

General Surgery. A Presentation of the Scientific Principles upon which the Practice of Modern Surgery is Based. By Ehrich Lexer. M.D., Professor of Surgery, University of Königsberg. American Edition edited by Arthur Dean Bevan, M.D., Professor and Head of the Department of Surgery, Rush Medical College, in affiliation with the University of Chicago. An Authorized Translation of the Second German Edition, by Dean Lewis, M.D., Assistant Professor of Surgery, Rush Medical College, in affiliation with the University of Chicago. With 449 Illustrations of the Text, partly in Color, and two Colored Plates. New York and London: D. Appleton & Company, 1908.

The translation of Professor Lexer's book has been undertaken because the editors believe that it presents the present status of the subject of general surgery in a more thorough and complete way than any other text-book. They have not hesitated to make such additions and changes as seem desirable to make the book more complete. A chapter on "Blastomycosis," beautifully illustrated and written by Dr. Ormsby, has been added; contributions on blood examinations in surgery, the subject of opsonins and the Wright vaccination treatment have been made by Dr. Rosenow; while an abstract of Dr. Crile's recent work on the direct transfusion of blood has been published.

The various subjects from the standpoint of general surgery are duly considered. The first one undertaken is the treatment and repair of wounds, under which heading several very good histological cuts appear, showing the regenerative changes taking place in the tissues. Sterilization and aseptic surgery receive ample consideration. General and local anæsthesia, the methods for inducing the same, and the treatment of accidents during the anæsthetic period are discussed more or less in detail. A most interesting chapter, though rather brief, is the one dealing with the different plastic procedures. The pyogenic infections of the various tissues also command much attention. In the chapter on the diseases of the blood and the lymphatic vessels, the Matas operation for the obliteration of aneurysm is described and well illustrated. The subject of tumors is well covered, and the accompanying illustrations add much to the intelligent understanding of the text. Not only are the gross specimens pictured, but some very good histological sections are presented.

While it is natural to expect the impossibility of considering more than the essential points in a book on general surgery of 1000 pages, we feel the necessity in this volume for a more even balance of the subjects. For example, there is no doubt that a more detailed discussion of surgical hæmatology would be of greater benefit to the man practicing surgery than the consideration of diphtheria, eczema and various other subjects, which are usually considered medical conditions.

The number of illustrations throughout the book suggests access to a large number of patients, and the character of these indicates the ability of the author to select the most interesting and instructive cases for demonstrative purposes. The table of contents is extensive and the index complete. At the end of each chapter is a list of the more important literature covering the subjects under discussion.—R. B. S.

Medical Lectures and Aphorisms. By Samuel Gee, M.D. Oxford Medical Publications. London: Henry Frowde, and Hodder & Stoughton, 1908.

This book consists of crisp, emphatic statements from the standpoint of a man of much experience, clear vision and wide scientific training. It deals with a large clinical realm which is admirably interpreted, beginning with the narrative of the history of a case of cerebral hæmorrhage; then taking up the meaning of certain words significant of diverse morbid phenomena in diseases of the nervous system, and of the lungs, kidneys, peritoneum, etc. Chapter XV, a large one, consists of "Clinical Aphorisms," excellent to know and useful to remember. The lecture form is preserved, which gives a personal touch, fixing well the attention.—J. M. T.

Seven Hundred Surgical Suggestions. Practical Brevities in Surgical Diagnosis and Treatment. By Walter M. Brickner, B.S., M.D., Assistant Adjunct Surgeon, Mount Sinai Hospital, New York; Editor-in-Chief, American Journal of Surgery, Eli Moschcowitz, A.B., M.D., Assistant Physician, Mount Sinai Hospital Dispensary, New York, and Harold M. Hays, M.A., M.D. Third Series. Duodecimo; 153 Pages. New York: Surgery Publishing Company, 92 William Street. Price, Semi-de-Luxe, $1.00; Full Library de Luxe, Ooze Leather, Gold Edges, $2.25.

Since the review a little over a year ago of the second series of these valuable suggestions, about 200 more have been added. Most of the additions have been made by Dr. Hays, who appears to be one of the editors of the present series, which contain about 700 suggestions. The commoner branches of surgery are fairly well covered, and even the special branches, such as the eye, ear, nose and throat receive considerable attention.

The necessity for the appearance of the third edition of this small work in a little over two years is an indication of the popular reception it has received and of its excellence.—R. B. S.

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Clinical Lecture

LUPUS VULGARIS.

BY JOHN V. SHOEMAKER, M.D., LL.D.,
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PHILADELPHIA.

GENTLEMEN: The patient before us this morning presents the typical lesions of lupus vulgaris.

History.—The history regarding this case is negative and he presents nothing abnormal by physical examination.

Present Illness.—The patient is a boy, fifteen years of age, whose face, as you all see, is involved, particularly the cheeks and alæ of the nose. He states that this affection first made its appearance as a pimple on his right cheek, which was soon followed by a similar pimple on the left cheek. These pimples were about the size of a pea and possessed a yellowish-red color. Having neglected and paid little attention to these pimples, they increased in size and number and approached the surface of the skin very gradually. In the meantime they became softer than the surrounding tissue, thus forming the characteristic gelatinous tubercles of lupus vulgaris which the patient states are not painful to the touch. We notice that the skin of his left cheek presents a punctated appearance which is due to the well-defined spots situated beneath the surface through which we are able to see their color. The lesions on his right cheek have infiltrated the surrounding tissue of the face and present a more or less serpentine form, which is undergoing absorption. After absorption there will be left behind a desquamating and atrophied skin which is called lupus exfoliativus. In other cases disintegration and ulceration take place in the surrounding infiltrated skin, constituting what is known as lupus exulcerens or exedens.

Diagnosis.—The diagnosis of this disease is based upon the fact that it occurs in early life and that the primary eruptions have gone through a number of changes, first forming papules, then tubercles, ulcers and finally, unsightly cicatrices. Also upon the peculiar color and shape of the patches, the central scar, the absence of subjective symptoms and the chronic course, which should serve to distinguish it from any other skin affection.

Differential Diagnosis.—This affection should be differentiated from syphilis, epithelioma and lupus erythematosus.

Lupus Vulgaris.	*Syphilis.*
1. Usually develops before the age of puberty.	1. Uusually develops after the age of puberty.
2. Course extremely slow.	2. Course rapid.
3. Generally concomitant signs of tuberculosis.	3. Concomitant signs of syphilis.
4. Lesions are flatter and softer.	4. Lesions are round, hard and larger.
5. Lesions possess a brownish or yellowish-red color.	5. Lesions possess a coppery hue.
6. Ulcers tend to coalesce.	6. Ulcers generally remain far apart.
7. Ulcers are comparatively superficial, with irregular, undermined edges; discharge slight, crusts scant and reddish-brown.	7. Ulcers are deep, with sharp cut edges. discharge copious, crusts bulky and greenish.

Lupus Vulgaris.	*Epithelioma.*
1. Usually develops before the age of puberty.	1. Usually develops after the age of puberty.
2. Several or many nodules which are soft.	2. Single nodule, which is particularly hard.
3. Lupoid ulceration is superficial, margin non-everted, not hardened; the surface is covered with bright red granular tissue, and there is a tendency to repair ending with cicatrices.	3. Ulcerated epithelioma is usually deep, the margin everted, hardened and undermined; there is no attempt to form cicatrices; the adjacent glands are usually involved.

Lupus Vulgaris.	*Lupus Erythematosus.*
1. The nodules and gelatinous tubercles are deep-seated.	1. The lesion is superficial, with no papules or tubercles.
2. Does not affect the sebaceous glands or ducts.	2. Sebaceous ducts are patulous.
3. Lesions discrete and ulcerate.	3. Lesions are well defined with scaly patches.
4. Occurs in childhood and youth.	4. Occurs after puberty.

Etiology.—The cause of this disease is somewhat doubtful and it originates in childhood and youth. The best authorities have contended that this disease is independent of tuberculosis and in support of their views point out the microscopic-pathologic difference of lupus vulgaris and tuberculosis of the skin. Doutrelepont recognizes lupus vulgaris as tuberculosis of the skin, due, therefore, to the invasion of the tubercle bacillus. This view has been opposed by Hebra and Leloir. Tuberculosis of the skin has been produced by injecting lupus tissue into other animals. Those affected with lupus vulgaris generally have tuberculous foci elsewhere. The disease occurs in about equal proportion in both sexes. The mode of inoculation appears to be by direct infection from without.

Pathology.—The views respecting the pathology of lupus vulgaris are still at variance. The morbid process has its primary seat in the corium which consists of round cell infiltration and appears to be a chronic inflammation which finally spreads to all the layers of the skin.

Microscopic examination deep into the corium shows sharply circumscribed nests of small cells containing refractive nuclei. After this has existed for some time retrogressive changes take place at the center in which a part of the nodule is absorbed or thrown off, due to the interference with the blood supply. Another part organizes into connective-tissue and contracts. These same changes are accompanied by cicatricial contraction of the whole affected part which has been infiltrated with the small cells. Ulceration follows when the lupus lesions are exposed, due to the destruction of the cells of the rete mucosa. The hair papilla atrophy causing the hair to fall out and there is hypertrophy and degeneration of the epithelium lining of the cutaneous glands.

Treatment.—My observations have led me to believe that the disease is largely constitutional and I have found it to occur, as a rule, in poorly nourished children and chloratic and tuberculous patients. Thus I have obtained my best results by resorting chiefly to constitutional treatment. Of course, local treatment must be resorted to as well, to prevent the further progress of the ravages of the disease.

While there is no remedy that has special curative effects, but general hygienic attention, good diet, with alterative and tonic treatment and proper local measures will, beyond a doubt, be productive of the best results.

We will place this patient on a mixture containing:

℞ Strychninæ sulphatis ..... gr. 3/5
Liquoris acidi arsenosi ..... f℥ij
Acidi hydrochlorici diluti ..... f℥iv
Glyceriti pepsini .....q. s. ad. f℥iij.
Misce. Signa. One teaspoonful in a little water a half hour after each meal.

Locally.—Where ulceration is in progress we will apply every second day, pure phenol to the parts involved. This will destroy the diseased tissue and stimulate healthy granulations. A stimulating ointment should be applied twice daily and as such we will prescribe for him:

℞ Olei eucalypti,
Cresoti (beechwood), of each..... *m* x
Hydrargyri ammoniati ..... gr. x
Unguenti zinci oxidi ..... ℥j.
Misce. Signa. Apply to the affected parts night and morning.

Prognosis.—As to a perfect cure and restoration of the destroyed tissue, we cannot possibly hope for, but we can so arrest the progress of the disease, that the patient can go on through life without much inconvenience. It will, of course, require constant and persistent treatment.

Original Articles

THE EFFICIENCY AND SUFFICIENCY OF THE UNITED STATES PHARMACOPOEIA AND NATIONAL FORMULARY PREPARATIONS FOR THE GENERAL PRACTITIONER.[1]

By JAMES M. ANDERS, M.D., LL.D.,

Professor of Medicine and Clinical Medicine of the Medico-Chirurgical College; Consulting Physician to the Jewish Hospital; Consulting Physician to the Widener Home for Crippled Children, etc.

For a considerable period of time the medical profession had been abandoning official preparations for untried and too often unethical proprietaries and nostrums in the treatment of disease. Fortunately, however, there has occurred an awakening on the part of progressive and reputable physicians, who are now engaged in a reconstructive movement, having for its purpose the placing of American therapy upon a moral and scientific basis.

This propaganda, which insists upon absolute publicity as regards the composition of the drugs and preparations entering into the physician's armament, has already accomplished excellent results. It is gratifying to note that a similar movement operating through the American Pharmaceutic Association and its various branches, is now in progress. Unquestionably, efforts to promote legitimate pharmacy and higher ethical standards on the part of the profession of medicine, are timely, but if not systematically maintained, will fail of their ultimate object, which is the complete overthrow of quackery, charlatanism, the "club-practice" evil, unethical proprietaries and secret nostrums. Moreover, such a consummation can be brought about only through the collaboration of these two professions working hand in hand under the most cordial relations.

To this end much would be gained by, according to the United States Pharmacopœia and National Formulary, their proper place in American therapeutics. It may be argued by some that the physician could not depend solely upon the preparations to be found in these two works, and it must be confessed that certain ethical synthetic preparations are available, which preparations it is permissible to employ, if occasion demands. On the other hand, the numerous unethical proprietaries and nostrums to be found on the market with their unsavory and misleading advertisements should be scrupulously avoided by the general practitioner. There seems to be a widely disseminated professional error to the effect that every new thing in therapeutics exploited by manufacturing druggists and chemists has decided advantages over older, tried remedial agents. Indeed, the credulity manifested by a supposedly intelligent and educated profession regarding the efficacy of all classes of unofficial preparations, is, to say the least, on sober reflection, truly phenomenal.

[1] Read before the local branch of the American Pharmaceutical Association, Feb. 2, 1909.

It is only necessary to note the results of the investigations by the Council on Pharmacy and Chemistry of the American Medical Association, to convince the most skeptical that the immense majority are unworthy of professional confidence. Thus said Council analyzed 670 proprietary preparations of which 40 per cent. were refused recognition, 15 per cent. held in abeyance and only 45 per cent. found worthy of approval. It is sad to contemplate that such well-known and popular favorites as anasarcin, lactopeptine, phenol-sodique, peptenzyme, cellasin and vin Mariani, among others should have been weighed in the balance and found wanting.

I have a fixed belief that in the present campaign, one of the most important questions for consideration and united action is to bring about further enlightenment of the medical profession with regard to the composition of many unethical proprietaries. The general public is also in need of added facts and data concerning the methods of the nostrum vender and the manufacturer of secret preparations as well as the unscientific and simple character of the preparations on which they have been and are basing their hopes and expectations of relief and cure.

Nothing has done more in the past to retard the advancement of the art of therapeutics than the exhibition of remedies and preparations whose physiological effects and composition, even, was unknown to the practicing physician. As elsewhere stated, "The same practice has fostered and encouraged self-drugging among the general public—an evil which urgently demands the serious attention of the organized medical profession."

The time has come to sound a note of warning to the public concerning the definitely grievous injuries, which often result from self-prescribing. Too commonly the observant physician can trace with certainty a drug-habit to this pernicious practice. Both morphine and acetanilid addiction are sometimes traceable to the use of certain popular remedies containing these drugs, for headache, migraine and neuralgia. Among other drugs which have been much abused by the public and can be too generally purchased without a physician's prescription are trional and veronal for the relief of insomnia.

The so-called headache powders so recklessly used by the laity, are sometimes unpleasant and rarely decidedly damaging in their effects, according to the character of the remedy used. These have been held responsible in part, and doubtless with justification for the increase in cardio-vascular diseases during the last quarter of a century.

It has seemed to me that the profession of pharmacy is scarcely alive to its serious responsibility in relation to the question of the possible untoward effects of recommending to the lay public potent proprietaries, for the relief of various common ills, such as headache, dyspepsia, ordinary "colds," constipation and the like. This remark is not intended as either a reflection upon or criticism of the profession of pharmacy, but is designed for serious consideration with the hope that the ill results of self-drugging and counter-prescribing may be minimized. It must be recollected that no matter how light or trivial the complaint in hand may be, its special etiologic factors demand respectful consideration when determinable, before drugs are to be

administered. In other words, to combat human ills successfully, the cases, whatsoever their nature, must be carefully studied and individualized.

The principal object of the present paper, however, is to show that a wise and judicious selection of remedies by the general practitioner from the United States Pharmacopœia and National Formulary, including certain non-secret proprietaries and synthetic preparations, whose genuineness and therapeutic worth have been proven by the Council on Pharmacy and Chemistry of the American Medical Association, will give him the most satisfactory results. Whilst therapeutics is an art and not a science, it is, as elsewhere stated, based in a measure at least, upon scientific principles, upon the known effects of drugs, on animals and healthy man, or pharmacodynamics.

Not only a knowledge of the physiological effects of the drugs employed is a prerequisite to successful therapy, but also as before stated, a knowledge of the ingredients contained in the various preparations employed in medicine. Again, as has been well said, "No physician, however, has any right, either moral or professional, to prescribe a preparation, concerning the ingredients of which he knows absolutely nothing." When the physician appreciates their precise composition, he is less apt to be deceived by the vaunted therapeutic virtues of the proprietaries.

Physicians, who were formerly in the habit of prescribing ammonol, orangeine, phenalgin, antikamnia, did so without knowing the ingredients entering into their composition, until these so-called medicinal agents had been investigated by the Council on Pharmacy and Chemistry of the American Medical Association, and the results of the latter body published. The recent disclosures of said Council have shown a remarkably wide discrepancy existing between the claims of the manufacturers of many proprietary medicines and the actual composition and virtues, either positive or negative of the same, should tend to arouse a supreme interest among the members of the medical profession in the proprietaries they prescribe for their patients. Indeed the situation at present is of such a character as to produce throughout the medical profession a wide-spread feeling of antagonism against proprietaries. In view of the reliable information published by the Council on Pharmacy and Chemistry, it will be readily apparent to thinking physicians that the unbroken support and use of any but thoroughly investigated non-official preparations, would be undignified and inexcusable.

If for no other reason, professional experience in the past regarding the unreliable composition and poor quality of the medicinal agencies composing the general practitioner's armamentarium, should make clear the necessity for a return to official remedies to be found in the United States Pharmacopœia.

With regard to the National Formulary, there is probably just room for criticism since it has failed in a measure to fulfil its mission. We may, however, confidently assure ourselves that a marked improvement in the character and efficacy of the formulæ contained therein will result from future revisions of the work. Moreover, the general practitioner will find it to be, on the whole, a reliable guide in practice. At all events, he will be in possession of a knowl-

edge of the composition and strength or dosage of the preparations he is employing.

If we except a few non-secret proprietaries and approved synthetic products, a resumption of the use of official remedies, including those to be found in the National Formulary, will give the general practitioner the best possible results —far better on the average than if he neglects these agents that have stood the test of time for new, indefinite compounds, whose efficiency has not as yet been proven.

There is one aspect of the present movement or controversy upon which it would be well to concentrate the combined attention of the professions of pharmacy and medicine; I refer to the particular form in which remedies are to be administered. Surely, the more elegant, palatable and attractive to the eye, are the agents prescribed, the more acceptable are they to the average patient. From this viewpoint, modern requirements and conditions demand that a well-planned readjustment be effected. On the other hand, the statements which are so often put forward to show the inadequacy of the efficient official drugs, fail to carry conviction to the minds of those who have taken the trouble to acquaint themselves thoroughly with the remedies to be found in the United States Pharmacopœia and have observed their effects when judiciously employed.

Again, while there are some instances in which the physician may rightfully prescribe combinations of drugs already compounded in the form of pills, tablets and fluid mixtures, it is, as a rule, better and more in accordance with scientific methods to formulate prescriptions at the bedside, using single drugs, however, to meet the indications presented by individual cases, whenever practicable.

UTERINE MOLES WITH SPECIAL REFERENCE TO THE HYDATIDIFORM MOLE.

By JAMES STRICKER RAUDENBUSH, M.D.,

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Uterine moles are very infrequent; they are said to occur once in 1000 to 20,000 obstetrical cases, yet many are overlooked and some patients with these conditions may never send for a medical attendant, or, at least, not in time for him to be able to recognize the condition. It is occasionally just as important to write upon, or to refer to, the unusual as the usual. Unusual pathologic conditions with possible dangerous consequences should be well understood. The dangers of uterine moles are hæmorrhage, sepsis, malignancy, and death. Usually, yet not always, the embryo or fœtus is dead and may be entirely absorbed. The causes in most instances are not definitely known, the diagnosis is difficult or impossible until after the expulsion of the mole, of whatever variety it may be. The treatment consists of prompt and complete

evacuation of the uterine cavity and the removal of all diseased tissues, should there be any malignancy.

Generally speaking, a uterine mole is a product of conception with proliferative, degenerative and hæmorrhagic changes; either the death of the embryo precedes these changes in the placental tissues which remain *in utero*, or follows them. Invariably abortion results. A living fœtus at full term is possible only when the pathologic changes do not begin very early in pregnancy and when they are slight in involvement of the placental tissues.

We have the following varieties of uterine moles to deal with:

Cystic Mole.

Synonyms.—Hydatidiform mole, hydatid mole (do not confuse this term with the ecchinococcic "hydatid cyst"), hydatid pregnancy, molar pregnancy, vesicular mole, grape mole, bladder mole, dropsy of villi of chorion, myxoma of placenta, *syncytioma benignum, myxoma chorii racemosum.*

This variety of uterine moles consists of a mass of translucent vesicles which are held together by pedicles; the whole mass resembling a bunch of grapes, or, as one writer says, "the seaweed known as bladder-wrack." These moles may be of enormous size, varying from a few vesicles in number to several quarts in quantity.

While the majority of writers state that this is a myxomatous or mucoid degeneration of the chorionic villi, a few claim that it is a hydropic one. There is a proliferative degeneration of the syncytium as well as of the subsyncytial (Langhans cells) layer with a myxomatous degeneration of the stroma of the villi, thus producing these enlarged translucent vesicles of various sizes, some as large as an acorn. Marchand is represented by a few writers, to claim that there is no mucin in these cysts, that the process is hydropic rather than myxomatous, and that the increased growth of the syncytium and the Langhans cells produces a mechanical dropsy of the stroma of the villi.

If a section is made of one of these vesicles, it is found to consist of the epithelial layers of syncytium and Langhans cells, which are very thin, the contents are a colorless gelatinous fluid and more or less resembles the liquor amnii; in the early stages mucin is said to be abundant, but later and in the larger cysts it is scant and albuminous substances are said to predominate in the more watery contents.

If these degenerative changes begin before the atrophy of the chorionic villi (*i. e.,* the formation of the *chorion læve*), the whole chorion becomes involved, but if later, then only the placental (*chorion frondosum*) portion. The blood supply is greatly decreased, hence the colorless appearance of these vesicles which are formed from the vascular structures of the fœtal membranes. Sometimes the entire placenta is transformed into a vesicular mole while at other times only small portions of it degenerate in this manner. Blood-clots and masses of fibrin may be found between and around these cysts (see below, "blood mole").

In some instances the death of the embryo or fœtus precedes the formation of these vesicles, in others its destruction follows. When the degenerative

processes begin very early so that the entire mass becomes a mole, then the embryo does not live and is generally entirely absorbed. This is what Tarnier calls a "non-embryonic mole." Occasionally the embryo is expelled and the placenta, being attached to the decidua, continues to receive nourishment and undergoes this form of degeneration. When the embryo is found it is called an "embryonic mole" (Tarnier). If the hydatidiform changes begin late in gestation, or are only slight in extent of involvement of the tissues, then the fœtus may live, and in very mild cases, go to full term. Cases have been reported in twin pregnancies where one ovum went to full term while the other underwent vesicular changes.

These moles are sometimes very adherent to the uterus, and the vesicles in some instances have entered the uterine sinuses and thus by pressure caused atrophy of the uterine wall, so that portions of it are exceedingly thin.

That the etiology is not known is generally admitted, yet the following causes are given by various writers: Age, from 20 to 40 years; multiparity; age rather than the actual number of pregnancies; advanced age; previous occurrences; syphilis; uterine diseases; fibroids; cancerous dyscrasias; irritable uterus; endometritis; diseases of the decidua; deciduitis; early months of gestation (one writer claims it cannot occur later than the third month); death of fœtus; diseases of ovum; faulty formation of allantois.

The symptoms are not characteristic. Symptoms of pregnancy, of course, exist, at first normal, then abnormal. About the second, third or fourth month the patient begins to feel badly. There may be nausea or vomiting. The most characteristic feature before the expulsion of the mole is the sudden and great disproportion between the uterine enlargement and the duration of pregnancy. In addition to this, bleeding appears with pains in the back. The pains finally resemble those of an abortion or miscarriage. This bleeding may be irregular and repeated or continuous and slow. The discharges of blood are watery, sometimes fetid; the quantity is usually not great but may become so. Occasionally unruptured vesicles will appear in the discharge, but these are seldom discovered. By examination, the uterus is found to be unduly enlarged, irregular to the touch and doughy, no distinct fluctuation, no fœtus can be discovered, no fœtal heart-sound is heard. Before the os is dilated nothing can be elicited per vagina, except that there is no ballottement; if the os is dilated, then the mole can be felt, it is a peculiar boggy mass, the fingers, which can readily penetrate it, receive the impression of a submerged net-work of stringy tissue.

A diagnosis cannot always be made until vesicles appear in the discharges or the mole is *ex utero*. The distinguishing points, however, should be remembered, viz.: a normal beginning of pregnancy; a rapid and enormous disproportion of the uterus to the duration of pregnancy; no distinct fluctuation; an absence of the fœtus; no ballottement; a watery sanguineous discharge which is usually not great in quantity, is intermittent or continuous and slow; the patient is not well and may be anæmic.

The following conditions may be confused with a hydatidiform mole and require differentiation: *Polyhydramnios;* here there is distant fluctuation, ballottement, and the fœtus can be palpated. *Twins;* two fœtal bodies, two

fœtal heart-sounds, a firm uterus. *Threatened abortion;* normal size of uterus for the duration of pregnancy; evidences of a fœtus, as a rule, may have a more abundant flow of blood, which is not watery. *False moles* (see below). *Hydatid cysts;* these are due to ecchinococci, here no tissues resulting from conception, no maternal changes or symptoms due to pregnancy. *Syncytioma malignum;* here a continued bleeding, even after the uterus is empty; microscopically the tissues will show cells of a malignant character.

The prognosis is very bad for the fœtus and not very good for the mother. These moles may remain in the uterus for more than a year, with or without local or general harm; this is not usual, however, for if they have not already followed an abortion, they invariably lead to it. When any of the vesicles are expelled, the pregnancy is usually interrupted, and this happens, as a rule, before the sixth month. A hydatid mole may undergo retrograde changes and a blood mole combine with it or result therefrom. If the mole is entirely expelled, there is usually no more bleeding and the patient may have a normal recovery, as after a complete abortion. There is a tendency in these patients to a recurrence of this condition in subsequent pregnancies. If the uterus is not emptied, or if portions are retained, then there is a continued bleeding as in ordinary incomplete abortion, the general health is impaired, the strength suffers, and death may occur from hæmorrhage or exhaustion. Infection is also very likely and death may result from this. As stated before, the vesicles may penetrate the uterine sinuses, cause absorption of the wall so that it may readily rupture and be followed by fatal hæmorrhage or peritonitis; in fact, these very accidents may occur when an attempt is made to remove everything from the uterine cavity.

These hydatidiform moles have a great tendency to become malignant, especially when the cysts penetrate and infiltrate the uterine wall, still we cannot tell when a mole has this character until we have further symptoms. When a *syncytioma malignum* follows a hydatidiform mole it is exceptionally fatal, more so than at other times.

Unless the mole is small and begins late in development the fœtus is lost, it dies and is generally entirely absorbed. It may, however, have been previously expelled from the membranes.

As to the treatment, the uterus should be emptied under strict antiseptic precautions as soon as the condition is known. In order to do thorough and careful work the patient should be anæsthetized. The treatment for this condition is the same as for inevitable or incomplete abortion. The patient's bowels are thoroughly evacuated, the bladder catheterized, the parts thoroughly antiseptisized. If the cervix is not at all patulous the Goodell dilator or the Hegar graduated steel dilators are used until the fingers can be employed and the dilatation carefully completed by the manual method. The mass is then removed by the fingers either in entirety or in pieces. With the fingers every particle can be separated and one can tell when all the tissues are removed. Again, the fingers are safer than instruments in these instances where there is so much danger of perforation of the uterine wall. As noted above, in this particular pathologic condition, such an accident would positively result in the

death of the patient. After the uterus is empty, ergot in some form or other, should be given, as well as strychnine. The uterine cavity is washed out with a bichloride of mercury solution, 1 : 4000 to 1 : 2000 and then followed by sterile water or normal saline solution. The uterine cavity is then swabbed out with pure tincture of iodine on a brush. If the uterus is well contracted and the patient's general condition is good this is all that will be required and the case can be conducted as an ordinary puerperal one.

The various writers recommend two plans of treatment, the "expectant" and the "active." I prefer the latter, since it has always given me perfect results in all kinds of abortion cases that I had to treat, whether infected or not, and this I cannot say of the expectant plan. I will, however, give an outline of both methods as given by different writers.

The *expectant plan.* If hæmorrhages are small. No active treatment until hæmorrhage occurs. Control hæmorrhage. Promote expulsion of fœtus. Non-interference so long as uterus remains passive. This is only allowable when the patient can be watched and assistance given at once if necessary. Absolute rest in bed. An opiate may be given. Ergot is given to prevent hæmorrhage and promote expulsion of mole. Hot antiseptic vaginal douches to check hæmorrhage. When ergot is given in full and repeated doses, then must tampon vagina for the safety of the patient. The dangers of this method are, excessive loss of blood, death as a result from hæmorrhage and shock.

The *active plan.* When hæmorrhage becomes or is pronounced, or when it cannot be stopped. Many writers, however, recommend this plan for all cases as soon as the diagnosis is made. Empty the uterus—the sooner the better. Antiseptic precautions. Dilatation of cervix; Goodell's dilator, Hegar's dilators, Barnes' bags, Tarnier dilators. Remove mass but avoid violent measures. Use fingers. If placental forceps or curette, be very careful and remember the great liability of perforation, hæmorrhage and death. Remember you may find no evidence of a fœtus. Do not be too energetic when mole is very adherent. Hot antiseptic intra-uterine douches to prevent hæmorrhage and infection. Ergot may now be given in continued doses, but with care. Tampons are used by some to prevent subsequent hæmorrhage and to stimulate the uterus to contractions.

Citation of a Case.

Mrs. C., age 50 years. Ten or eleven children. Five years ago, twins (both living). When not pregnant she was always regular in menstruating, duration three days, but suffered severely from dysmenorrhœa. Always a well woman but did very hard work all her life. In the beginning of July, 1908, she had her last period. On account of her age she did not suspect pregnancy and paid very little attention to the fact that she was not feeling perfectly well. In the beginning of October (three months later), she had a fall and began to bleed and feel badly; two weeks later she went to see her physician, Dr. J. J. McNulty, but refused an examination; she had been bleeding all this time, was anæmic, had a rapid pulse but no fever. Her physician did not hear from her until two weeks later when, on Sunday morning, November

8th, he was called to the house and found the woman "flooding," her clothing and everything saturated, the patient feeling very sick, weak and fainty. The free hæmorrhage was going on for 24 hours, yet she kept on her feet. The doctor noted her general appearance, examined her abdomen, found the uterine fundus at the umbilicus and the uterus more or less hardened; by internal examination he felt what he thought was a bleeding cancerous cervix. In the afternoon I was called in consultation. My external abdominal examination gave me no definite diagnostic points, and with the anæmia and the patient's weather-beaten appearance in the face, I also strongly suspected that the doctor's diagnosis was correct. I removed the blood clots from the vagina and then found the cervix dilated to the extent of 5 cm. (2 in.), and a soft, boggy mass like that of the placenta lying within. My first thought was, of course, of placenta prævia, but I soon caught on to a small particle which I withdrew and found to be a vesicle. This enabled me at once to make a positive diagnosis of hydatidiform mole. I again examined the uterus externally and found Hick's sign of rythmical hardening. Although it was only four months since her last regular menstruation, her uterus was the size of a six months' pregnancy. The patient was kept in bed, tonics given, bowels well cleaned out.

The following morning the patient was anæsthetized and I removed, in fragments, from the uterus two and one-half quarts of pedunculated vesicles. No trace of a fœtus. Placental tissue scant; about 9 cm. (3½ in.) long, 3 cm. (1¼ in.) wide, 1 cm. (⅜ in.) thick. I used my fingers only. Douched with bichloride of mercury and sterile solutions. Touched the uterine cavity with pure tincture of iodine. The patient was in a splendid condition.

Ergot was given for a day or two to keep the uterus contracted and thus prevent hæmorrhage as well as the absorption of septic material, if present. Strychnine was also administered. Later, strychnine, ergotin, quinine, reduced iron and arsenic, as indicated. Antiseptic vaginal douches for a few days only. On the tenth day she had three very severe chills, temperature 100.8° F., pulse 120. Vaginal irrigations resumed. Six days after this she got out of bed, but when on her feet she bled; back to bed for one week more. She then got up and was soon allowed to go down stairs, when she began to bleed again; she was given ergot and since then has had no trouble. I received the post-operative report from the doctor on February 25, 1909, at which time the patient was perfectly well.

Blood Mole.

The "hematomatous mole," "subchorial hematoma" or *mola sanguinea* results from a so-called "internal abortion," and, in fact, is an incomplete abortion with certain pathologic changes. Primarily there is a hæmorrhage, variously described as utero-placental or deciduo-subchorial, in which there is a formation of blood clots. The hæmorrhage occurs between the decidua and the chorion, or the blood enters between the layers of the fœtal membranes but seldom into the amniotic sac. The fœtus, however, is dead and may be expelled by itself without the mole, or it may be completely absorbed. The formation of the hematoma may precede or follow the death of the fœtus.

Lusk says that these moles are seldom larger than an orange and that they are usually expelled between the third and fifth months.

Remember this form of a mole may follow changes in the hydatidiform mole or exist with it.

The subjective symptoms resemble those of a hydatidiform mole in many instances, in other cases an ordinary abortion.

The treatment is like that of an inevitable or incomplete abortion,—the patient is anæsthetized, strict antisepsis is observed, the cervix is dilated and the uterus emptied and thoroughly cleansed. The after-treatment is the same as it is in an abortion case.

Fleshy Mole.

The "flesh mole," "fibrin mole" or *mola carnosa* is simply an original blood mole in which the blood becomes decolorized and more or less absorbed, deposits of fibrin occur, and the mole resembles a mass of flesh, hence the name. The fœtus is dead in all cases and may be absorbed. The placental tissues are retained within the uterus a long time and the cases have been reported in which these masses, when expelled, were casts of the uterine cavity. Of course, in these as in the original blood moles, there are frequent hæmorrhages. The treatment is the same as that advised for the blood mole.

Stone Mole.

In the beginning this is a blood mole, then it undergoes the changes of a fleshy mole and at the same time receives calcium deposits which give it a hard feel, hence the name. The symptoms do not differ from those of the preceding varieties and the treatment is the same.

False Mole.

"False moles are not the result of conception" (Quain, 1883). These are not referred to in the literature of to-day. They consist of shreds of vaginal mucous membranes, the uterine mucosa from membranous dysmenorrhœa, altered blood clots, polyps, etc. These must be, and can be, differentiated from true uterine moles (results of conception), by the history of the case, symptoms and microscopical examinations of the expelled material. A correct diagnosis is sometimes imperative from a medico-legal standpoint.

TUBERCULOSIS OF THE BREAST.

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PHILADELPHIA.

Virchow did not include tuberculosis as one of the affections to which the mammary gland was liable. Although Sir Astley Cooper and Velpeau had discussed tuberculous diseases in a somewhat vague and indefinite way, it was not until 1881 that Dubar made a careful, systematic and scientific

classification of the disease. He was the first to demonstrate the tubercle bacillus in connection with the breast.

Though undoubtedly rare, tuberculosis of the mammary gland is more common than it has been previously thought to be. In fifteen hundred cases of mammary disease admitted to St. Bartholomew's Hospital, London, there were 1.5 per cent. due to tuberculosis.

Tuberculosis of the breast may be primary or secondary. It cannot be stated that the lesion is primary unless at autopsy a careful and systematic examination is made to exclude the possibility of a focus elsewhere. If no such focus be found, it is fair to assume that the disease is primary. When primary, infection may either take place through the blood or directly from without. When occurring in the latter way, infection may take place either through an open wound or through the galactophorous ducts. Verneuil believed strongly in the latter mode of infection. Inasmuch as the lesions are more pronounced in the alveoli than in the ducts, and furthermore, as the ducts themselves are not more diseased at their exit at the nipple than in the substance of the gland, it is questionable whether infection through the duct is common. If infection occurred through the duct it is reasonable to suppose that the lesion would be more pronounced at the beginning of such ducts than elsewhere. Kitt, who has made a thorough study of bovine tuberculosis, is of the opinion that tuberculosis of the udders is nearly always of hæmatogenous origin.

Secondary tuberculosis of the breast may result from the extension of the disease from the ribs or pleura, or be carried by the lymphatics from diseased axillary or other neighboring lymphatic glands, or through the blood current from a focus even remotely situated.

It has been fairly well established that the disease begins within the acini rather than in the connective tissue of the breast.

Etiology.—Mammary tuberculosis is far more often encountered in females than in males, and is particularly obnoxious to young women. Of thirty-two cases studied by Delbet, there were eighteen in the decennium from twenty-five to thirty-five. Schley was of the opinion that it occurred with equal frequency in the third, fourth and fifth decades. Although more often found in young women, tuberculosis may be found at any time of life. One case I have encountered in literature in a woman of seventy.

Heredity exerts little, if any, influence. Trauma and inflammatory affections, by lowering the vitality of the breast, predispose it to subsequent tuberculosis. Tuberculosis in other parts of the body markedly predisposes one to secondary involvement of the breast. Mandry found tuberculosis elsewhere in one-half of the cases that he carefully investigated.

Pathology.—We shall not consider miliary tuberculosis, which is a general process, and therefore not confined to the breast. There are both discrete and confluent varieties. In the former there are isolated tubercles separated by healthy tissue. These tubercles may undergo changes, either remaining isolated, or by their coalescence, forming larger masses, this constituting the confluent form of the disease. The isolated tubercles vary widely in size,

some being smaller than a pea, others as large as a hazelnut. When caseation and liquefaction occur, abscesses result.

In the confluent variety, a swelling of considerable proportions results. It is, however, not sharply limited, being ill-defined and irregular with bosselations here and there. If cut into during the early stages, it is white or grayish in color and rather firm in consistency. Later on, however, the center will have become yellow in color, although the periphery may still retain the original appearance. When liquefaction occurs, the so-called cold abscess of Roux results.

Cases of tuberculosis of the breast co-incident with carcinoma have been recorded. In one of four cases reported, the symptoms of tuberculosis predominated and the macroscopic appearance was that of tuberculosis rather than carcinoma. Microscopic examination demonstrated carcinoma as well. I have seen one well-marked instance of such associated disease, a photograph of the lesion being shown in my book on diseases of the breast. Of two such cases reported by A. S. Warthen, of Ann Arbor, Michigan, tuberculosis was primary in one, and carcinoma undoubtedly the primary lesion in the other. Pilliet and Piatot reported another such case in a male, aged fifty-one.

Rokitansky, who taught that tuberculosis and carcinoma never occur simultaneously, afterwards acknowledged his error and admitted that the two diseases were infrequently associated.

We cannot, at the present time, say whether or not the association is fortuitous, or whether one lesion predisposes to the other. It is not difficult to understand how the irritation produced by the tubercles might easily cause abnormal proliferation of epithelial cells ending in cancer.

Symptoms.—The onset of the disease is insidious except when it occurs during lactation, when it is of more rapid growth. It may last for years. Only one breast is affected, there being no case, so far as I know, where both organs were involved.

In the discrete variety indurated areas may be detected here and there throughout the substance of the gland, but separated apparently from the surrounding tissue. In other cases the outline is indefinite.

The skin is not adherent until late in the disease. When it is, fistulæ soon form. Pain is a rare symptom early in the disease, and when present does not exist to a pronounced extent. It may be severe as a late symptom.

The confluent form pursues a more rapid course, fistulæ forming early in its evolution. A mass varying in size from a hazel-nut to an orange, of irregular outline, hard or soft, is found usually in the upper and outer quadrant. The axillary glands are early involved, rapidly increase in size, and may suppurate. It is to be noted that the glands do not fuse and become matted together as in carcinoma. This is of importance as a differential sign.

Diagnosis.—The recognition of mammary tuberculosis may at times be far from easy, especially if the case is encountered before there is destruction of tissue. When fistulæ are present, together with enlarged axillary glands, there should be little difficulty in the diagnosis. Its recognition will be easier if there are known to be tuberculous foci elsewhere.

The disease may be confounded with actinomycocis, but the presence of the ray-fungus in the latter affection enables a positive diagnosis to be made. Tuberculosis has been mistaken for carcinoma and *vice versa.* In cancer the skin very early in the affection becomes adherent; whereas, it is a late symptom, if it occurs at all, in tuberculosis. In cancer the axillary glands may enlarge slowly, are harder and become fused together, which is not the case in tuberculosis. Tuberculous disease generally occurs in young women. Carcinoma is usually found after forty.

Prognosis.—In primary tuberculosis the prognosis is excellent. In the secondary form it will depend, of course, upon the nature and extent of the primary lesion. Of sixteen patients reported by Braendle, of the Tubingen clinic, fifteen were cured by operation and were shown to be well one to nineteen years afterwards. Three of these patients succumbed to phthisis subsequently. There was, however, no local recurrence.

Treatment.—Tuberculosis of the breast should be treated by excision of a wedge-shaped portion of the gland, curetteing and cauterizing the sinuses, or by amputation of the breast, owing to the extent and variety of the disease. Where the process seems to be discrete and localized in a definite portion of the breast, partial resection of the gland is a warrantable procedure. Where a large part of the breast is involved, however, nothing short of amputation is to be considered. If sinuses are not too numerous, they may be curetted and cauterized. In one of my cases, a girl of twenty-two, an excellent result followed plastic resection of a part of the breast. She was entirely cured with practically no resulting deformity. It is of importance, I think, that the mammary gland of young marriageable women should not be sacrificed needlessly. I consider it necessary that the axilla should be explored in all cases, and if enlarged glands are found, they should be removed. An incision along the lower border of the breast, after Warren's method, freely exposes both the entire breast and the axilla to our view. The scar cannot be noticed subsequently.

In cases which refuse operation, or in others possibly as an adjuvant to it, Wright's bacterial vaccines should be used. I have had no experience with this treatment, but its value in other forms of local tuberculosis warrants its employment in tuberculosis of the breast.

Bier's treatment may also be given a fair trial. A hemispherical glass vessel, somewhat larger than the breast itself, in the dome of which there is a glass nipple attachment, is placed over the breast. A rubber tube is placed over the nippple and a suction pump being attached, sufficient negative pressure is made to cause a decided hyperemia of the skin. This is kept up for five minutes, then removed for five minutes, after which it is reapplied. This is repeated for thirty to forty-five minutes. There is no reason why a combination of Wright's and Bier's treatments may not be employed, for in this way the opsonic index of the blood may be relatively increased.

Editorial

INTERNATIONAL TUBERCULOSIS EXHIBITION.

The International Tuberculosis Exhibition which is now in view at 921 Walnut Street, has aroused the interest of every man, woman and child in the City of Brotherly Love. It has awakened them from the drowsy, lethargic mode in which they have been immersed for some time. Thousands of people, irrespective of the weather, daily visit the exhibition where they follow the demonstrators and in this manner they display their intense interest in emphasizing the City's part in the warfare against this great white plague. The curiosity and eagerness concerning an intelligent knowledge of the disease displayed by the people is surprising to the medical profession. The laity seem to have joined this crusade with a most profound patriotic spirit for the eradication of the death-dealing malady. The importance of this noble crusade cannot be overestimated when it is realized that it costs our country about a million dollars a year. Nevertheless, we have remained indifferent to the fact that untold misery and large number of lives and great sums of money are lost every year from a disease that can and ought to be eradicated. At last we are awakening from our lethargy. The change has been gradually induced by the insistent pressure of the ravages of the disease. The great interest shown testifies the awakening of mankind to the necessity of making further investigations and greater efforts in order to reduce the ravages of the disease and infection to a minimum. At the present time the campaign is being carried on with greater energy than ever before as is shown by the enlisting of the laity into societies for the support of sanatoria where tubercular patients may seek relief. The spirit is still further shown by the formation of fresh air societies and leagues, whose chief object it is to erect sanatoria to carry out this plan in the treatment of the disease.

Since Professor R. Koch's great discovery of the tubercle bacillus in 1882, and the publication of his exhaustive researches therefrom, the medical profession has proven and demonstrated that tuberculosis can be prevented and cured. Science has demonstrated that this affection can be wiped out of existence, but the rapidity with which this can be accomplished depends upon the promptness with which this new doctrine can be inculcated into the minds of the people.

The exhibition occupies a large building consisting of three large floors full of every conceivable safeguard, curative, and preventative known to the profession universally. Among the exhibits are pathologic specimens, models, photographs, plans of sanatoria, instruments, various treatments, methods of sterilization, etc. Some of especial interest are models of the slums showing how closely packed together the poor people live surrounded by unhygienic and unsanitary conditions which are very favorable for the development of tuberculosis. A very striking picture is that of a poor family living in a tenement house of the slums. The father, a dying consumptive, unable to

work and support his family, living in a dark and dirty room, where his children, wife and pets are all exposed to infection. Nothing else can illustrate more graphically the danger of living with a consumptive under such circumstances than this. Nothing is more appealing to the laity than this reproduction. This sad picture teaches the people of the dangers surrounding the children of the poor in their restricted homes, where the father or mother may have become a victim of tubercular infection. Near by is another reproduction which shows a properly disinfected and properly furnished room for the treatment of poor consumptives at a low cost. Other groups of models show the great superiority of light, air and general hygiene for the cure, prevention and treatment of this disease. In addition to the highly instructive material exhibited and demonstrated, short lectures are delivered daily by many physicians coming from different parts of the State of Pennsylvania on the various points pertaining to this disease. Scattered throughout the exhibition are large signs containing the plain facts concerning tuberculosis in its various stages.

Many years ago this affection was regarded by many as hereditary and incurable, consequently its existence was ignored and concealed and thus became a source of great danger and infection to others, resulting in the great number of tubercular patients at present. But now things have changed and we can cure the majority of those infected. Post-mortem examinations of those dying by accident, show that many of the people living in the cities have had tuberculosis of the lungs without knowing it.

This exhibition teaches the consumptive the nature of the disease and instills into him the facts that it can be prevented and cured, and that he can protect himself from reinfection and thus hasten his cure by religiously adhering to the instructions given by the demonstrators and lecturers, concerning the disposition of his sputum and mode of life. It is consequently a matter of great concern both to those who suffer from tuberculosis and those who associate or are brought in contact with them. The work of this exhibition brings the results of the latest studies and investigations not only before the laity but before the profession at large, and places in the hands of our physicians all the newest and most approved methods of treating the disease. A knowledge which will add many years of valuable life to our people and will, therefore, increase our public health, happiness and wealth.

If this exhibition accomplishes more for the education of the laity than for the advancement of science as regards the knowledge of this disease, our efforts will be amply rewarded.

In order to appreciate the value of such an exhibition we must look back a few centuries and compare it with the present and so draw our inferences and conclusions from it, to see whether this exhibition will have a good or bad effect upon the laity at large. This horrible and dreadful disease, which has previously swept one seventh of the population of the universe, has wrought sorrow to many unfortunate families by robbing them of their chief advisor and protector and has left children as outcasts with no protection whatever.

Since the investigations of the various pioneers in this field, the medical

profession has been stimulated to such a degree that we do not give up all hope of recovery as we have done years before. We do not consider life a question of days; the disease is no longer as it was. We have lived up to the latin proverb, "Facilia est omnia volentia."

As the laity walk through the different corridors gazing upon the specimens which illustrate graphically the havoc wrought by this disease upon the human system and that this affection is caused by contagion, he will naturally exert all his efforts to prevent his contact with tubercular patients. On the other hand, those suffering with this malady will dispose of their sputum according to the hygienic rules displayed. They will also be greatly encouraged to fight the disease by noting the number of cases in which the ravages and progress of this disease has been retarded or cured. Naturally they will institute strict measures to save themselves and indirectly save others. They cannot help learning that infection results via the respiratory and digestive tracts and through open wounds. They will also be induced to report to the health officers all tubercular patients which are a source of danger to others, thus affording an opportunity in due time, that proper medical and hygienic attention may be instituted for the sake of their families, friends and neighbors.

Many new cases of infection arise through ignorance of the infectivity of tuberculosis and through the absence of any knowledge as how to live without spreading infection. To teach the laity these principals, the local authorities have distributed leaflets conveying simple instructions for the every-day life of tubercular patients.

The knowledge concerning this disease is not only inculcated into the minds of the people visiting the exhibition but it is also brought to outsiders. This is accomplished through the admirable service of the public press and through the schools. Since the teachers in the public schools have a great mission in protecting the children from contracting this disease, it is absolutely necessary that they should be educated to know the general symptoms and appearance of tuberculosis or scrofula in order that they may detect any child who may present any of the symptoms leading to this disease. The teacher should teach them the love and judiciary use of fresh air and sunlight and also special health rules, so that the little ones, especially when they are the children of the poor and ignorant parents, may serve as missionaries at home.

This exhibition will accomplish a noble object. It will do away with the odium existing between the non-consumptive and the consumptive. It will teach those associating with consumptives to treat them kindly and considerately and that the conscientious consumptive, provided he adheres strictly to the hygienic precaution, can safely associate with others and need not feel as though he were an outcast.

Since 1885 statistics have shown the steady decline in the mortality of tuberculosis and for this the principle of general sanitation has been responsible chiefly. We may expect, in the future that this improvement will be maintained by the continued prevention of overcrowding, the enforcement of good

ventilation, improvement of streets and drainage and more stringent supervision of meat inspection, etc. When these laws and regulations are strictly enforced, plus the coöperation of the laity, we hope that our children will see the day when tuberculosis will be wiped out of existence. Only then will we be amply rewarded for our painstaking investigations, mental and physical work. The time will undoubtedly come when we will scatter this affection to the four winds and send it to the fourth dimension. Since so much can be accomplished through the medium of these exhibitions, we should endeavor to have more of them throughout the country, in order that the laity may be constantly kept informed of the imminent danger of contagion and spread of this disease. Such public exhibitions will not only assist to eradicate tuberculosis, but will lessen many other contagious and infectious diseases.

Materia Medica and Therapeutics

ADRENALIN IN INFECTIVE DISEASES.

Dr. Hoddick directs attention to the excellent results obtained by Heidenhain in the course of the past three years from injections of this extract added to saline solution in cases of septic peritonitis marked by serious collapse and low blood-pressure. The failure of copious injection of simple saline solution in cases of this kind, and the views expressed by Heineke and others that the reduced tension in acute peritonitis is the result of paralysis of the vasomotor centre in the medulla oblongata, and not of primary cardiac failure, led Heidenhain to make a trial of adrenalin. From six to eight drops of a solution (1 in 1000) of the adrenalin having been added to about a pint and a half of physiological saline solution, the mixture in the cases selected for this treatment was injected into the median bacilic vein. It has been found advisable in all cases of laparotomy, except in those in which the patient is already intensely collapsed, to inject the solution after, and not before the operation.

The results of these post-operative injections have, Hoddick states, been found striking in regard to the prevention, or at least to the decided relief, of the extreme depression with cyanosis and low pulse so often observed after laparotomy for acute infective peritonitis. A table is given, which shows that, while in Heidenhain's clinic, in 1901, and the three following years, the relation of recoveries to deaths from epityphlitic peritonitis was 6 to 14 during the past two years, and since the first use of adrenalin injections, 16 patients out of 19 recovered. (British Medical Journal, September 19, 1908.)

ADRENALIN IN THE TREATMENT OF CANCER.

Dr. Floersheim states that Berdier and Talbert report the cure of a cancer of the rhino-pharynx by the daily injections of adrenalin into the growth. Deafness was soon overcome, and after a month or so there was scarcely a trace left of the growth. In other cases the relief of pain by the injections was noticeable, even when the cancer was

too far advanced for treatment to be more than palliative. They believe that some connection between the suprarenals and the evolution of the cancer seems a plausible assumption from the facts observed. Feeswigen, in cancer of the rectum, used adrenalin chloride 1 to 1000 twice a day over the cancer. He noted a decrease in the accompanying proctitis, a diminution in the discharge from the ulcer, and a decrease in the size of tumor. Ulcers became pale and hæmorrhage checked. G. Malno relieves pain and hæmorrhage in cancers of the breast, mouth, throat, face and rectum by swabbing the ulcerated surface of the cancer with adrenalin. (Am. Med., October, 1908.)

CAMPHOR-NAPHTHOL IN TUBERCULOSIS.

Dr. Werden describes this method of treatment in twenty cases.

This preparation affects a tubercular tissue in two ways: First, by its bactericidal properties, and second, by the favorable influence due to its irritative reaction as brought about by the local active hyperæmia. The conclusions of the author are as follows: First, the treatment of surgical tuberculosis by camphor-naphthol injections, in conjunction with good fixation of the affected organs, gives better results than all other methods of treatment. Second, camphor-naphthol injections are absolutely without danger, if the preparation is only injected into the abscess cavities and into the fistulas, and if for interstitial injections, there are used emulsions or camphor phenol with glycerin in the ratio of one part camphor-naphthol to 5.2 parts of glycerin, according to the age and general condition of the diseased individual. Third, the interstitial injections of camphor-naphthol and the evacuation of abscesses are absolutely painless, if the part affected is first anæsthetized by means of a 1-per-cent. cocaine solution. (Zeit für orth. Chir., Band xxi, Heft 4, 1908.)

CRANIECTOMY FOR ALBUMINURIC RETINITIS AND URÆMIA.

Drs. Cushing and Bradley report a case of albuminuric retinitis in a young woman who was suffering from a nephritis of long standing. The swelling of the optic discs being 6 D and 7 D respectively, while vision was $^{2}/_{100}$ and $^{1}/_{200}$. The œdema of the retina increased gradually until it was no longer possible to distinguish the discs, while each fundus was studded with various sized hæmorrhages. Later definite signs of uræmia appeared, such as intense headache, vomiting and moderate stupor, which increased in spite of the ordinary means of treatment. Lumbar puncture several times showed fluid under high pressure. The authors, in view of the extreme gravity of the case and their experience that temporary benefit results in such patients from the relief of pressure by lumbar puncture, decided to try a decompressive craniectomy, which they believe to be the first ever done expressly for the relief of this condition.

As a result the headache and vomiting immediately ceased, and the stupor rapidly disappeared, while after four days the swelling of the discs had subsided to one diopeter. Later other details of the fundi were gradually revealed, and it was determined that the patient was actually myopic. The stellate figures characteristic of albuminuria gradually disappeared and the hæmorrhages partially absorbed. She was for many weeks entirely free from headache and nausea and vomiting,

though the kidney condition remained unchanged and the blood-pressure was 200. She was rather reluctantly discharged from the hospital, but two or three weeks later was readmitted in a state of coma, which was supposed to be uræmic, but which the autopsy showed to be the result of a large cerebral hæmorrhage.

The authors have advanced the theory that many of the symptoms associated with these conditions were not due to toxæmia, but to pressure from cerebral anæmia. In examining the eye grounds in this affection during lumbar puncture, they have noted striking changes in the vessels, such as the straightening and narrowing of tortuous veins, and in a number of cases a measureable subsidence of swelling, though these changes are, of course, usually transient. Similar observations have been made by them in eclamptic obstetric patients. (American Journal of Medical Sciences, October, 1908.)

ENEMATA OF COLLARGOL IN THE TREATMENT OF SEPTIC DISEASES.

Dr. Curt Seidel reports eight cases, of which three were arthritis, in which enemata were given followed by good results. This treatment, if it is not employed too late and continued for a sufficient length of time, never fails, even in severe cases. The enemata works quickly, and in one to two hours reaction follows. The method consists:—

1. A soap and warm water enema daily.

2. Fifteen minutes after the evacuation of the enema and accompanying stool, a careful irrigation with saline or soda, to remove mucus. (Presence of mucus prevents absorption of drug.)

3. Fifteen minutes later 2 to 5 drops collargol in 50 to 100 drops warm boiled water. One to two times daily in severe cases.

4. In mild or chronic cases 1 to 2 drops in 50 to 100 drops warm boiled water, several times daily.

5. After improvement begins, dose is to recede, but continue for not less than fourteen days.

6. In change for worse, renew enemata, unless this is caused by abscess formation or other local affection.

The solutions are to be at room temperature. If the collargol is not retained, add 8 to 12 minims tr. opii simpl.; or, instead of twice daily, give four to six smaller enemata daily. Tenesmus or burning never follows. As an irrigation saline is better than soda, as the latter causes tenesmus of rectum. The silver is absorbed within the first hour after injection. This can be demonstrated by radiograph. If mucus is left, silver is seen six to eight hours later, the silver having been precipitated by the mucus. (Deutsche Med. Wochenschr., 1908.)

GELSEMIUM.

Dr. Wm. Henry Morse recommends the tincture of gelsemium in from fifteen- to twenty-drop doses, taken once only, and at bed-time, as a means of aborting a common cold, or an attack of acute coryza. All cases that can be aborted at all will be aborted by the gelsemium treatment, and the cases are few in which this cannot be done. This treatment, however, will not abort the acute epidemic catarrh that we call "grippe." He has occasionally added tincture of belladonna to the gelsemium, but has never observed that this was of any benefit. When gelsemium is used, nothing else is required in conjunction with it, it alone doing the work

required, and, moreover, there is no tendency to extension of the catarrhal process farther down the respiratory tract. He has always used the tincture, but has no doubt that any other good preparation of this drug will be equally efficient. The treatment has been so successful in his hands that he has become quite enthusiastic about it. (Medical World, December, 1908.)

GENERAL ANÆSTHESIA BY THE RECTUM.

Dr. Dumont extols the encouraging results from administration of the anæsthetic by the rectum for operations on the head and throat, since it leaves the field of operation entirely clear for the surgeon. Before administering the anæsthetic, fifeen drops of tincture of opium are given to avoid reaction on the part of the intestines. The pulse and respiration were even and tranquil in his experience with four cases, and no symptoms were observed on the part of the bowels, except in the first case before the present technic has been adopted. The main points in this rectal technic are to prepare the bowel for the anæsthetic and to insure that only the fumes—not a droplet of fluid—find their way into the rectum. He used ether, an interposed glass sphere in the connecting tube, collecting the condensed droplets as the fumes of the ether rise from the graduated jar set inside an outer jar filled with warm water. When the operation is commenced the author advises the continuation of the anæsthetic by inserting the olive tipped glass tube in the rectum and allowing the ether fumes to enter as the patient shows signs of rousing. General anæsthesia by the rectum is not advisable when it is a question of operation elsewhere. Its true field is for operations on the head and throat, as a supplement to the ordinary technic. (Correspondenz-Blatt für Schweizer Aerzte, Basle, December 15, No. 24.)

INDOXYLURIA IN MENTAL DISEASES.

Dr. G. Pardo has investigated, by means of the spectro-colorimeter, the amount of indoxyl excreted by certain patients with mental disease, and the transformation of the indoxyl into indigotin and indirubin. After describing the method employed and the formation of indirubin from the urinary indoxyl by heating with isatin in alkaline solution, the author comes to the conclusion that in patients with epilepsy or periodical insanity the indoxyl in the urine may appear in the form of indirubin instead of indigotin after they have passed through a period of excitement. This indirubinuria, he thinks, is due to the grave digestive upset from which these patients have often suffered. Like indoxyluria, indirubinuria is an index of intestinal putrefaction, and of deficient activity on the part of the liver and intestine. (British Medical Journal, November 4, 1908.)

IODINE AS AN ANTIDOTE TO PHENOL POISONING.

Dr. J. Maberly has recommended the internal use of the tincture of iodine as an antidote against poisoning by carbolic acid. The tincture of iodine has also been used with good results as an application to the skin to counteract the corrosive action of carbolic acid. The iodine neutralizes the corrosive action of the acid on the mucous membranes of the mouth and œsophagus, overcomes the poisonous symptoms, and is said to prevent lesions of the stomach and intestines by the probable formation of non-toxic phenol iodide. The

author regards the action of the tincture of iodine in carbolic acid poisoning as superior to that of the alkali sulphates. (La Tribune Médicale, January, 1909.)

LAPAROTOMY IN THE TREATMENT OF GANGRENOUS HERNIA.

Dr. F. Hesse has performed laparotomy in cases of incarcerated hernia with the view of reducing the risk of infection of the peritoneum. He opens the abdomen by making an incision ten centimeters long and three centimeters above and parallel to Poupart's ligament, and opens the abdomen. The strangulated loop of intestine is then sought for, the surrounding parts being protected by gauze tampons. The mesentery of the afferent and efferent segments is loosened, the intestine resected and lateral anastamosis performed. The resected gut is returned to the abdomen, and the free ends of the excised portion of intestine are closed with strong silk ligatures, to which long strips of iodoform gauze are tied. The gangrenous gut in the hernial sac is then exposed in the customary manner and disinfected as thoroughly as possible. It is then drawn through the hernial opening, carrying along the gauze strips which have been tied to the free ends above, and which protrude from the neck of the sac. This prevents infectious material from being carried into the abdominal cavity from the hernial sac. The gauze tampons are then removed from the abdomen, except the one surrounding the site of anastamosis. This, as well as another gauze drain, which is introduced from above into the hernial opening as far as the ends of the iodoform gauze strips, is passed out through the laparotomy wound, which is completely closed except at this place. The herniotomy wound is left open. (Münch. Med. Wochensch., December 8, 1908.)

LIPOID SUBSTANCES IN THE TREATMENT OF TETANUS.

Dr. Bockenheimer has made a study of tetanus. He reports the late Von Bergman's clinic, and his conclusions are based upon 25 clinical cases and experiments upon animals. He states that all wounded persons must be treated prophylactically, since a method of early diagnosis of tetanus is lacking. All wounds should be washed with a 3-per-cent. solution of hydrogen dioxide and an application of antitoxin in solution or powder. In extensive wounds, in addition to the local application, an injection of antitoxin should be made into the muscles and large nerve trunks near the wound. This treatment is to be repeated daily during the first two weeks. Wide removal of tissues infected should be practiced when prophylactic treatment has not been instituted. This is very necessary, due to the fact that a local infection becomes general, and we have no means to forecast how soon this may take place. Amputation should be done in all cases if the symptoms appear before the twelfth day, and then large doses of antitoxin should be injected and kept up several days after the convulsions have ceased.

The object of the prophylactic treatment is to keep out the dust, dirt, and putrefactive bacteria, which are favorable for the formation of the toxin.

Balsam of Peru, or vaseline, should be applied each day to the wound, with or without the addition of antitoxin. The body should be kept cool and rested. In addition to this, chloral should be given, 10 to 20 grams daily,

morphine and repeated anæsthesia. One cubic centimeter of a 25-per-cent. solution of magnesium sulphate solution for each 25 pounds of body weight should be used to produce lumbar anæsthesia of the lower extremities. (Archiv. für klinische Chirurgie, Bd. 86, Heft 2.)

MERCURY IN INFECTIOUS AND CONTAGIOUS DISEASES.

Dr. H. E. Jones, Mt. Sidney, Roanoke, Va., highly recommends the use of bichloride of mercury in infectious and contagious diseases, due to its antiseptic and germicidal properties. For a number of years the writer has used this drug with good results in the treatment of scarlet fever, measles, pertussis, la grippe, pneumonia and typhoid fever, provided they came under care early before complications or profound toxæmia had developed without a complication or death. He has also treated intestinal diseases in children with bichloride, without a single death, provided the cases had been secured early. The dose is $\frac{1}{16}$ to $\frac{1}{8}$ grain every two or three hours for an adult; children in proportion, except in severe syphilis. In such cases he administers it hypodermically $\frac{1}{16}$ to $\frac{1}{8}$ grain once a day for four days, and then twice a week for three weeks, and gives them during the hypodermic medication $\frac{1}{16}$ to $\frac{1}{8}$ grain by mouth five or six times daily, and continues it for several months, or longer, if necessary. He reports a case of typhoid fever in a patient who suffered from all the symptoms peculiar to this disease. The patient's pulse was 101; temperature 101½° F., tongue coated, complexion sallow, conjunctiva yellowish-white, had cough and feeling of discomfort and oppression over front of chest, slight pains in left side and region of spleen; stomach and bowels tympanitic and painful on pressure. He ordered calomel to be followed by a saline and a prescription composed of phenacetine, aspirin, salicylate of quinine and powder lactopeptin every three or four hours. The next day he gave 5 grains of a soft quinine capsule, to be given every four hours, and also continued the first prescription. This treatment was continued until May 26. On that date he discontinued the quinine and prescribed $\frac{1}{16}$-grain tablets of bichloride, to be given every two hours when awake. Six days after the commencement of the bichloride treatment the tenderness and soreness over his stomach and bowels disappeared. His temperature went down, and he improved quickly.

The most timid doctor need not have any fear in giving this treatment. It will not do the patient injury. Watch the effect, and as soon as the gums swell and teeth become slightly tender, stop the drug for a few days. Resume it as soon as tenderness and swelling has disappeared. (Virginia Medical Semi-Monthly, January 22, 1909.)

OPERATIVE TREATMENT OF PUERPERAL PERITONITIS AND THROMBOPHLEBITIS.

Dr. Leopold reports eighteen cases in which he has applied operative treatment, with recovery of thirteen of the women (mortality 27 per cent.); external causes were responsible for the fatalities in nearly every instance. He reviews this material and tabulates it under various headings, emphasizing the importance of gonorrhœal infection shortly before or during pregnancy as fraught with greater danger for the confinement than is generally supposed. In such women high fever may develop with signs of beginning peritonitis as

early as the third day after delivery or not until the sixth day. The tardy fever is especially characteristic of gonorrhœal infection, and may soon lead to death from acute peritonitis or thrombophlebitis. Especially dangerous are the prolonged hæmorrhages after abortion, particularly when associated with fever; after expulsion of the ovum acute peritonitis or thrombophlebitis may develop. The gravest signs of this are the high, small pulse, hiccough, vomiting and chills. Of subordinate importance are abdominal pain, meteorism, and, with thrombophlebitis, pain at the obturator foramen and œdema of the feet and legs. Acute puerperal peritonitis indicates, not later than the third day, opening into the abdominal cavity to evacuate the pus. In every case Douglass' *cul-de-sac* should be opened, irrigated and drained. If the peritoneoum is not involved, puerperal, purulent thrombophlebitis should be treated by ligation and incision of the thrombosed, pus-filled vein. The best method here is the transperitoneal. The proper moment for it has arrived when chills indicate that the thrombi are crumbling and are being swept along. In view of the fact that after a benign course of thrombosis of the femoral vein or the external iliacs on one or both sides, pyemic fever may develop later, he advocates early ligation of the iliac or the ovarian veins, or even of all four. It should be recognized that the danger from the thrombophlebitis is far more threatening than that from the operation. Delay, however, reduces the resisting powers beyond redemption. (Journal of the American Medical Association.)

OXYGEN IN TUBERCULOUS PERITONITIS.

Dr. J. A. McGlinn (Philadelphia) reports four cases of pelvic peritonitis in women which were treated by the use of oxygen introduced into the peritoneal cavity through a median abdominal incision for about thirty minutes. This method has given him admirable results. After treatment the patients improved rapidly; they gained in weight, and were soon able to perform their household duties.

The writer recognizes three types of tuberculous peritonitis, the ascitic form, the fibrous form and the ulcerative form. However, most authors are in accord that it is only the first type that is amenable to treatment. Two forms of treatment are recognized: surgical and medical. Some hold that the medical treatment is superior to the surgical, but the best results have been obtained by a laparotomy in addition to other methods advocated from time to time by different authorities.

Many cures have resulted from the surgical treatment, but the reason for such cures have not been explained satisfactorily, consequently it is impossible to devise a scientific form of treatment. However, only 75 per cent. of the ascitic forms can be cured by plans of treatment now in vogue, but the fibrous and ulcerous forms of tuberculous peritonitis are not amenable to treatment. The method employed by Dr. McGlinn was as follows: The water bottle of the oxygen apparatus is sterilized and filled with sterile water. The tube leading from the bottle and rubber tip are sterilized. The tip is covered with several thicknesses of sterile gauze. The oxygen is introduced through the abdominal incision until the abdomen becomes inflated. The incision is now closed with gauze, and the oxygen is allowed to remain for several minutes. The gas is then allowed to escape, and the peritoneal cavity is filled again and

again. (New York Medical Journal, August 22, 1908.)

PICROTOXIN.

Dr. William F. Waugh considers the use of picrotoxin the principal active element of coculus indicus. In small doses picrotoxin is a vital incitant and nervous regulator, as shown by the good results obtained from its use in rupture of nervous equilibrium from disease of the cerebro-spinal axis of the organs. The vast field for its employment is found in spasmodic nervous maladies, essential or symptomatic. Planet considers picrotoxin one of the most powerful remedies in epilepsy, and Gubler advised and employed it in chorea. Westbrook administered it hypodermically in doses, beginning with $\frac{1}{100}$ grain to $\frac{1}{50}$ grain. This was repeated every two or three days. In epilepsy Gubler and Dujardin Beaumetz secured by its use a prompt amelioration, and even disappearance of the paroxysms, a remarkable result in a malady so grave and so tenacious. Laura states that it is efficient in phthisical night sweats, colliquative, and in those of convalescents, especially those that resist atropine. The commencing dose for an adult should not exceed half a milligram, and as it is rapidly eliminated, it is a safe remedy, never accumulating, but is prompt and powerful in action. (Merck's Archives, November, 1909.)

PINEAPPLE AS A MEDICINE.

The medical value of pineapples has recently been the subject of considerable inquiry among physicians, and in Hawaii experiments have been made to determine something of these properties. It has been found that the fruit of the pineapple contains a digestive principle closely resembling pepsin in its action, and to this is probably due the beneficial results of the use of the fruit in certain forms of dyspepsia. On the casein of milk pineapple juice acts as a digestive in almost the same manner as rennet, and the action is also well illustrated by placing a thin piece of uncooked beef between two slices of fresh pineapple, where in the course of a few hours its character is completely changed.

In diphtheritic sore throat and croup pineapple juice has come to be very largely relied upon in countries where the fruit is common. The false membranes which cause the closing of the throat seem to be dissolved by the fruit acids, and relief is almost immediate. (Southern California Practitioner, January, 1909.)

RADICAL OPERATION FOR UMBILICAL HERNIA.

Dr. Martin recommends the following operation for umbilical hernia devised upon the basis of the Mayo operation. This method has been employed by the author with good results, and in no case has there been a recurrence. He has operated upon six cases: three corpulent women with hernias varying in size from that of a goose egg to a man's fist; two children, and a man with small hernias.

The method consists in removing an oval portion of the skin transversely, dividing the fascia and both layers of the sheath of the rectus transversely, opening the sac by longitudinal incision, replacing the contents, and removing the sac. The peritoneum, transversalis fascia, posterior sheath of the rectus, and rectus muscle are sutured longitudinally, and the anterior sheath of the rectus, the fascia and the skin are sutured transversely. The fascia is

overlapped after the method of Mayo. The deeper stiches are of catgut and silk, and those of the fascia are alternating ones of iodized catgut and silk. The skin is closed with a running stitch. By this method there are two lines of suture at right angles to each other and touching at only one point. A very resistant belly-wall is produced. The patient is put to bed with the knees flexed, and compression is made over the bandage by means of a sand-bag. (Deutsche Zeitschrift für Chirurgie, Bd. 94, Hefte 3 and 4.)

SEROTHERAPY IN THE TREATMENT OF POST-DIPHTHERITIC PARALYSIS.

Drs. G. E. Schneider and L. A. Vandeuvre advocate the use of large doses of diphtheria antitoxin in post-diphtheritic paralysis as soon as the symptoms appear, whether soon after the angina or after some weeks. They cite a case in which a young adult had an attack of diphtheria of moderate severity and recovered from it. About forty days afer his apparent recovery he was taken with an almost absolute paralysis of the motor nerves of upper and lower limbs, palate and pharynx. Swallowing was impossible and voice nasal. When brought to the hospital he had to be fed with a stomach tube. He was so emaciated and somnolent that he was corpse-like. Large injections of diphtheria antitoxin were at once begun, and continued until he was entirely cured, five injections being given in all. Improvement began at once, and when discharged from the hospital he was able to walk as well as ever, and to perform all his functions. Here there was a rapidly extending polyneuritis involving nearly all the voluntary muscles. The muscles of respiration, the diaphragm and intercostal muscles were spared. The serum was well tolerated throughout, and it is noticeable that in cases of severe intoxication, it is well borne even in large doses. Antitoxin, supplemented with pastilles of antidiphtheritic serum, may prevent complications. (Progrés Méd., August 29, 1908.)

SODIUM SALICYLATE IN RHEUMATISM.

Dr. Ralph Stockman, of London, showed and analyzed a large number of charts, illustrating the prompt fall of temperature which resulted when a rheumatic patient came under the influence of sodium salicylate. When the initial lesion was partial or slow, an increase in the amount of the drug would usually cause the temperature to fall completely. He also showed charts illustrating the action of the drugs closely allied in pharmacological composition ——— salicin, salicylate of methyl, etc. In one group of cases of rheumatism, the synovial membranes of the joints were alone or principally involved; in a second group of cases, which were more chronic and less amenable to treatment, there was much involvement of the surrounding fibrous structures, the tendons and fasciæ. In the latter much larger doses might be required.

Dr. D. B. Lees advocated the use of large quantities of salicylate of soda, always combined with twice the amount of sodium bicarbonate. The initial dose for an adult should be 150 grains daily, with a daily increase of 20 to 50 grains, until the temperature fell and remained normal. A temporary reduction in the dose should follow any unpleasant symptoms that might arise, and when they disappeared the dose of the drug should be increased very cautiously. Sodium salicylate was not a cardiac depressant. Two precautions were necessary—to

give sufficient bicarbonate of soda to render the urine alkaline and to prevent constipation. Under this treatment the dilatation of the left ventricle rapidly disappeared. In rheumatic pericarditis and myocarditis the application of an ice-bag was of great assistance. If there was evidence of dilatation of the right auricle, this must be relieved by leeches before the ice was applied. (British Medical Journal, December 19.)

SODIUM NUCLEINATE IN ACUTE INFECTIONS.

Dr. Laine publishes reports of ten cases of infectious disease in which injections of sodium nucleinate were used with good results. Among the cases reported were several of purulent peritonitis, following appendicular inflammation, pyosalpinx, epiploitis following an operation for hernia, and phlebitis. The best results were obtained by one or two massive doses (5 grains) once or twice a day. The injections must be given deep in the muscles, as the one objection to their use is that they are somewhat painful. The beneficial results seem to be caused by the production of an artificial hyperleukocytosis. It is noted by the author that the sodium nucleinate is a combination of nucleinic acid, derived from fish or the flesh of animals, with soda. (Therapeutic Gazette, November, 1908.)

SUCTION HYPERÆMIC TREATMENT OF GYNECOLOGIC AFFECTIONS.

Dr. Seeligman gives an illustration of a glass speculum connected with a rubber bulb which allows Bier's hyperæmic technic to be applied in chronic metritis, endometritis, amenorrhœa, abscesses, etc. He precedes the application of the suction by scarification or a small incision. The method applied at the date of the menses has proved useful in the disturbances from the natural or induced menopause. He also applied the method with prompt success in a case of puerperal infection. After aspiration of large amounts of purulent secretion from the uterus, the fever subsided. He applies the suction for only ten minutes, but repeats it daily. His experience confirms the advantages of suction treatment of mastitis, stitch-hole abscess, etc. (Clinical Journal, London, December 9, 1908; Journal of the American Medical Association, January 9, 1909).

TREATMENT OF ASTHMA.

Dr. Treupel regards asthma as a special form of neurasthenia, and believes that it can be effectually cured by impressing the fact of its curability on the patient and obtaining his coöperation. The main point is to influence and control the dread of suffocation and to regulate the breathing. The latter is accomplished by various exercises, training the patient to breathe deep, with a slow inspiration, at the same time raising the arms over the head and then, during expiration, applying the hands to the front and sides of the chest, squeezing the walls together to aid in expelling the last traces of air. These exercises, or their equivalents, should be repeated once or twice a day for fifteen minutes. Electric light sweat baths and potassium or sodium iodide have proved very useful in his experience when applied during the intervals between attacks. Sedatives may be useful in the acute attack, but should be used only in emergencies. Exercises and hydrotherapy, with a transient change to a more favorable climate, the seashore or mountains, are important adjuvants. He adds that the treatment of bronchial asthma is a grateful, but by no means

an easy task; success requires much skill, a determined will and perseverance. (Deutsche medizinische Wochenschrift, Berlin, December 31.)

TREATMENT OF APPENDICITIS IN PREGNANCY.

Dr. Rudaux considers that as a prophylactic measure all pregnant women should be cautioned against the dangers of constipation and advised as to the use of laxatives. The diet should be arranged on a simple and nourishing basis, and these precautions must be especially emphasized in the case of persons who have already suffered from appendicular attacks. Should an attack supervene, the patient must be kept in bed and deprived of all food and drinks, and neither purgatives nor injections should be administered. Subcutaneous injections of serum are given to relieve thirst, and an ice-bag is suspended over the right iliac fossa. If the abdominal pain is severe, injections of morphine and heroin are useful. When the symptoms have subsided after five or six days, a teaspoonful of Evian water, may be given every half hour or hour, but not more than half a pint should be given during the day; on subsequent days a pint may be allowed. When the temperature is normal, spoonfuls of milk, with either rice-water or Evian water, are given. After four or five days a large sound should be inserted into the rectum twice a day for half an hour, and at the end of a week small doses of olive or castor oil may be given to promote the action of the bowels. The ice-bag should only be removed when all tenderness has disappeared. Food is then given with great caution, and the patient is kept in bed for at least a month. Surgical intervention is only advised when symptoms of abscess or of general peritonitis are observed. (British Medical Journal, November 14, 1908.)

TREATMENT OF CHRONIC ENDOMETRITIS.

Dr. J. H. Rector describes his method of treatment of chronic endometritis. It consists of free drainage of the organ and of its mucous glands with irrigations with various solutions. Preliminary dilatation is produced by the use of a mild galvanic current applied with an intra-uterine electrode, and followed by irrigation with galvanization. The current must be even uninterrupted, and the negative electrode is applied in the uterus. The galvanic current produces direct stimulation of muscular, glandular and secretory structures. Simple catarrhal endometritis produces a watery discharge, while the involvement of the cervix renders it thick and ropy. Proper treatment involves cleansing, opening the mouths of the glands, stimulating glandular activity, and replacing the normal equipoise between vascular supply, innervation and muscular relationship. All these are accomplished by galvanic irrigation. (Medical Record.)

TREATMENT OF INOPERABLE CARCINOMA OF THE UTERUS.

Dr. Freund states that in cases of carcinoma of the uterus, which cannot be removed radically, surgical treatment remains the only one that gives some relief from the symptoms, and temporarily at least, alleviates the sufferings of the patient. The loss of blood, the fetid discharge, the absorption of toxic material from the broken down cancer may all be put a stop to by a proper operation in the last stages when cure is impossible; it is also possible to prevent a rapid progress of the malig-

nant process for months, and even for a year, as Freund's experience proves. The improvement is probably due to the removal of the peritoneal ascites, to the freeing of important organs from mechanical and chemical injuries caused by the growth, and especially to the great capacity of the healthy tissues to oppose the progress of the disease by encapsulating and limiting them for a time at least. One of his cases showed at the operation that the bladder wall was attacked by the growth, yet the viscus remained without perforation for two years after the operation. The important thing to remember is that cancer of the uterus may be very fast growing in one case and very slow in another; operation may, therefore, relieve the latter case very much, and for a considerable period of time. Operations by the abdominal route, with the removal of as much diseased tissue as possible, is therefore indicated even in very advanced cases of uterine cancer. (Medical Record.)

UNMODIFIED SUN RAYS IN THE TREATMENT OF LUPUS VULGARIS.

Dr. J. Goodwin Thompson extols the advantages of the employment of systematic sun exposures in the treatment of lupus vulgaris where unclouded sunshine and other favorable climatic conditions are constant and dependable quantities. Eleven cases are reported by other writers and out of these eight were cured and the remaining three were stationary. Of the thirty-four cases of scrofuloderma, six cases were greatly benefited while the remaining twenty-eight were cured. The author reports the case of an old lady, who had lupus of the face for twenty-five years. She was recommended by the author to lay out in the sun, five hours every day for a period of four months, her head swathed in a cloth, and eyes shaded with a dark bandage. In about four months her face was found smooth, and the apple-jelly nodules which he had seen on her cheeks four months previous to this treatment had completely disappeared. After further treatment she was entirely cured.

The curative factors in the treatment of these cases were the bactericidal action of the sun's rays, the tonic action of the sea air, the mildness and regularity of the temperature at Cannes, which allows an open-air life, and the prolonged sunbaths. (British Medical Journal, October 24, 1908.)

USE OF COLLOIDAL SILVER IN THE TREATMENT OF PUERPERAL INFECTION.

Dr. Cyrille Jeannin (Progrès Méd., August 1, 1908) gives a careful review of the method of use and dosage of colloidal silver in puerperal infections. It is perfectly harmless, and has an antiseptic and preventive effect as well as a catalytic action. It should be used as soon as the infection assumes a serious aspect, and its use late in the case is of much less value than when begun early. When the localized infection shows signs of generalization it should be begun at once. The best method of use is by intravenous injection, made in the median cephalic vein, with care not to introduce the needle into the cellular tissue of the vein. The dose should be from 10 to 15 cubic centimeters of a 1-per-cent. solution of collargol. Inunction may be combined with this method, but it is much slower and should not be relied upon alone. The injection should be repeated in forty-eight hours, since the action of the remedy passes away quickly and must be kept up. Gaseous embolism

has not been known to occur. The immediate result of the injection is a chill and rise of temperature. When this does not occur we know that the organism is not reacting properly to the remedy. After the rise of temperature it falls by lysis. If such a fall does not occur the prognosis is bad. The patient immediately begins to feel better, in spite of the rise of temperature. The author gives results of forty-nine cases treated with collargol at the Lariboisière. Of these thirty-nine lived and recovered and ten died, making the cures 76 per cent. (American Journal of Obstetrics, January, 1909.)

Book Reviews

Obstetric and Gynecologic Nursing. By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia; Obstetrician and Gynecologist to the Philadelphia Hospital; Consultant to the Preston Retreat, etc. Third Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1908.

This new book on "Obstetric and Gynecologic Nursing" comprises, in a limited number of pages, all the salient facts necessary for the treatment, both medical and surgical, in the field of obstetrics and gynecology. The volume is written strictly in accordance with the newer medical and surgical facts in the practice of obstetrics and gynecology, and includes the best methods of nursing the mother during pregnancy, parturition, and the puerperal state, and also the care of her child.

The anatomy of the parts involved and the methods of making a correct diagnosis are very clearly described, and the essential details of treatment are beautifully pictured and explained. The book is divided into two parts:—

Part I—Obstetric Nursing.
Part II—Gynecologic Nursing.

All the various methods of taking care of the diseased woman are extensively treated, and nothing is left to the imagination.

Among some of the important chapters are: "Nursing in the Complications of Pregnancy;" "New-born Child and Its Care;" "Obstetric Surgery;" "Gynecologic Operations;" "Cancer;" "Veneral Diseases."

Another feature of the book is the appendix, which contains "Dietary;" "Preparation of Surgical Supplies;" "Other Methods of Preparation of Surgical Supplies and Aseptic Precautions."

This book can be recommended to nurses and physicians as a concise, practical guide in the various details of obstetrics and gynecology.

Lincoln's Love Story. By Elanor Atkinson, Author of "The Boyhood of Lincoln" and "Ma'm'zelle Fifine." Illustrated. New York: Doubleday, Page & Company, 1909.

In this little book we have the beautiful, tragic love story of one of the wrold's greatest souls told with a touch that is tenderly sympathetic. The light and shade are strangely intermingled, deepening at last into darkest midnight in those sad months following the death of his sweetheart. The strength, the devotion and loyalty of a noble nature are graphically and vividly portrayed throughout the entire story.

Practical Dietetics with Reference to Diet in Disease. By Alide Frances Pattee. Graduate Department of Household Arts, State Normal School, Farmingham, Mass.; late Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City; formerly Instructor at Lakeside, St. Mary's, Trinity and Wisconsin Training School for Nurses, Milwaukee, Wis.; St. Joseph's Hospital, Chicago, Ill., etc. Fifth Edition. Mt. Vernon and New York: A. F. Pattee, Publisher, 52 West Thirty-ninth Street.

The author has produced in this book one of the best volumes on practical dietetics which has come into our hands. It contains all the essential points that a nurse should know concerning the feeding of the sick. The author has succeeded admirably in furnishing a book fulfilling the requirements of simplicity, brevity and exactness, with reference to administration of diet in disease and infancy.

The book concludes with an appendix containing practical points and suggestions for the nurse concerning the sick room, bath, disinfectants, temperature, etc. In every way it is a splendid work, and fully sustains the high standard set by the previous editions.

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Original Articles

Department in charge of J. MADISON TAYLOR, A.M., M.D.

GRADUATED OUT-DOOR LABOR IN PULMONARY TUBERCULOSIS.

BY GUY HINSDALE, M.D.,
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ONE of the interesting and instructive English exhibits at the International Congress on Tuberculosis at Washington was that illustrating the use of graduated labor as carried out at the Frimley Sanatorium of the Brompton Hospital, London. This exhibit included photographs showing how patients are employed in the most carefully graded methods of out-of-door exercise. The various implements used were sent over from England, so that they could be seen and handled. These included baskets of different sizes, spades of different weights, wheelbarrows, and pickaxes, small and large, according to the capacity and rating of the patient.

Dr. Marcus S. Paterson, the medical superintendent of the Brompton Hospital Sanatorium, read a paper at the Congress on "Graduated Labor in Pulmonary Tuberculosis," and this was supplemented by another paper by his colleague, Mr. A. C. Inman, the superintendent of the Laboratories of Brompton Hospital, on the "Effect of Exercise on the Opsonic Index of Patients Suffering from Pulmonary Tuberculosis." These papers and the previous publications by these authors in the Lancet[1] are very interesting, and must be considered together as a valuable contribution to the scientific treatment of tuberculosis.

[1] Lancet, January 25, 1908.

The fact that the method advocated involves the use of exercise amounting, in the end, to hard labor for as much as eight hours a day is, of course, directly opposed to the usual treatment in private practice and to that in vogue in many sanatoria. The Dettweiler system enjoins rest in the open air with superalimentation; whereas the Nordrach system as carried out by Dr. Walther and by his predecessor, Dr. Brehmer, at Goerbersdorf, in Silesia, involves much exercise in addition to fresh air and alimentation. Brehmer advocated hill climbing while Walther advises graduated walking exercises, in some cases to the extent of twenty miles a day. In America, Benjamin Rush and Benjamin Franklin recorded cases of consumption cured by horse-back riding, over a hundred years ago and Sydenham recorded such a case which antedated them. The fact, also, that in such modern sanatoria as the Free Hospital for Poor Consumptives at White Haven, Pennsylvania, the patients were put at various occupations from the outset as an economic measure and that the performance of these duties was found beneficial; and the general practice at most institutions of assigning more or less arduous duties to convalescing patients constitute altogether a different matter from the *system* advocated by Dr. Paterson. We therefore take issue with the writer of a recent communication, who claims that the Englishmen have copied the Americans in this method of treatment.[2]

The patients for whom Paterson instituted graduated labor were selected cases sent from the Brompton Hospital in London to its sanatorium at Frimley at an elevation of 380 feet in the country.

He was induced to carry out this plan of treatment after seeing tuberculous patients who did well while working under unfavorable surroundings; but he believed that under careful regulation of labor and with very careful observation of the temperature records, he might safely proceed. The exercises adopted involved all the muscles of the trunk and extremities and this was thought to be better than walking exercises in which the lower limbs were chiefly employed. The use of the upper limbs seemed more likely to favor the expansion of the lungs. It was not forgotten that the common objections to this plan of treatment are: (1) that the disease would become active again under the strain; (2) that the exertion would tend to produce hemoptysis. Considerable tact and personal influence must have been exerted to get the patients to carry out a plan which involved increasing labor and measures that were generally considered positively harmful.

The first exercise ordered was walking, the distance being gradually increased up to ten miles a day. When a patient had reached this stage he was given a basket in which to carry mould for spreading on the lawns. No case of hemoptysis or of pyrexia occurred among these patients. When they had been on this grade with nothing but beneficial results for from three weeks

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2 See article by Joseph Walsh, M.D., Assistant Director Phipps Institute, MONTHLY CYCLOPÆDIA AND MEDICAL BULLETIN, October, 1908. "Although we are obliged to give credit to Europe for many of the theoretical ideas and much of the practical work in connection with medicine, occasionally we do something on this side of the water worthy of notice. When this is done, and Europe takes the credit for it, we naturally feel a little chagrined."

to a month, they were given boys' spades with which to dig for five minutes followed by an interval of five minutes for a rest. After a few weeks several of the patients on this work, who were doing well, were allowed to work as hard as possible with their small spades without any intervals for rest. As they had all improved on this labor larger shovels were obtained, and it was found that the patients were able to use them without the occurrence of hemoptysis or a rise of temperature. About this time many of the patients were feeling so well that it became necessary to restrain them from doing too much.

These results in a few cases created a most favorable sentiment among the other patients, so that the system was extended generally, with great care and minute supervision. Harder work was prescribed for patients who could be trusted even to the use of spades, shovels and five-pound pick axes. The patients all expressed the opinion that the work did them good and that the harder they worked, the better they felt. Many patients have written to Dr. Paterson to say that they date their improvement from the commencement of the labor and that they think the hardest work did them the most good. It certainly speaks well for the strict supervision of these patients that no accidents occurred of a serious nature though several developed fever and, subsequently, pleurisy. One patient was laid up for two months and was much worse at the end of that time though eventually he did well and returned to work, though the extent of his disease was increased through overexertion.

The suitability of cases for graduated labor rests on a very careful physical examination, importance being laid on the general muscular and physical development. Marked wasting and poor development is, naturally, a bar to this method of treatment. The resisting power of a patient with a very limited lesion is an unknown quantity and has to be determined, whereas a patient with a lesion involving four lobes may remain at work for some time and exhibit a good initial resisting power.

Dr. Paterson lays very great stress on the temperature taken in the mouth. If this is or has been 99° F. or over, during the week preceeding admission to the sanatorium, the patient is put to bed after the journey. So long as the temperature remains at 99° F. in the case of men or 99.6° F. in the case of women, the patient is not allowed up for any purpose. So long as the temperature is unaffected by exertion the patient is gradually allowed up for longer and longer periods. Patients with apparently limited disease, but who are in poor general condition and without fever, are allowed to be up all day but are not permitted to take further exercise than is entailed by walking to and from the dining hall for their meals. The remainder of the day is spent in resting. As their condition improves they are allowed to walk half a mile a day, then a mile a day, and so on, until a distance of six miles a day is reached. The rate of increase in the amount of exercise depends upon such factors as the patient's disposition, weight and appetite.

The grades of work are briefly, as follows: (*A* 1) Walking from one-half to ten miles daily; (1) Carrying baskets of mould or other material; (2) Using a small shovel; (3) Using a large shovel; (4) Using a five-pound

pickaxe; (5) Using a pickaxe for six hours a day. Patients in grades 1, 2, 3 and 4 work four hours a day.

The basket work in which about eight pounds of earth are carried is considered the most important and, as a rule, patients spend far more time in this work than in any other. It brings into use all the muscles.

Work has a wholesome effect on the mind. If the patient is at first sullen and apathetic, the improvement in physical condition quickly begets a lively and cheerful mental attitude and one that seeks work rather than to shirk it.

During 1905 and 1906 the number of patients discharged from this sanatorium was 164 and they all returned to their previous occupations, whatever that happened to be, and not to light out-door work. They were fitted by the line of treatment which we have described for effective wage earning.

We have dwelt quite fully on this innovation in tuberculotherapy because it gives promise of good practical results and further, because it is so radically different from the prevailing methods adopted in most sanatoria. But the most interesting feature is the explanation which is offered to account for the benefits which have accrued.

This explanation is set forth in an elaborate study made by A. C. Inman, M.B., the Superintendent of the laboratories of the Brompton Hospital, on the "Effect of Exercise on the Opsonic Index of Patients Suffering from Pulmonary Tuberculosis."[3]

This study of Inman's was prompted and made possible by the brilliant work of Sir Almroth Wright. Wright showed in his Harveian Lecture in New York, that there are three great agencies by which immunizing responses can be evoked in the organism:

1. By the inoculation of bacterial vaccines.
2. By artificially induced autoinoculations.
3. By spontaneous autoinoculations.

Wright had previously elucidated the subject of vaccine therapy by constructing curves from the opsonic indices of patients vaccinated against their infection and in this manner traced a definite train of events which follow upon a single inoculation. The successive phases were termed the negative phase, the positive phase and the phase of maintained high level. Freeman, working in Wright's laboratory, then took up the subject of massage in its effect on gonococcal joints showing that "autoinoculations follow upon all active and passive movements which effect a focus of infection and upon all vascular changes which activate the lymph-stream in such a focus."

Wright's dictum was that "where in association with a bacterial invasion of the organism bacteria or bacterial products pass into the general lymph- and blood-stream, intoxication effects and immunizing responses, similar to those which follow upon the inoculation of bacterial vaccines, must inevitably supervene." It is a perfectly logical conclusion, then, that nature cures bacterial infections through such auto-inoculations. Inman set himself to find out what the body is doing of itself and what value extraneous circumstances, such as

[3] Read before the Medical Society of London, January 13, 1908.

physical exercise, have in aiding these attempts on the part of the body. Inman's work was conducted on a carefully planned technic, controlled and checked at all points, using forty-three patients in the sanatorium treated by the system of graduated labor.

Inman found that in 41 out of 43 cases the opsonic index was, at some time of the day, well above the normal and, what is of even more importance, in no case did the exercise, even though severe, lower the index below the normal line—that is, the autoinoculation was never so great as to produce a negative phase and, therefore, never in excess. "It was observed during these investigations that in some bloods examined tuberculo-agglutinins appeared in association with the immune tuberculo-opsonins. This must be taken as another evidence of an immunizing response on the part of the organism. When the difficulties of such a method of treatment and the danger of the weapon employed are taken into consideration it will be readily understood that every now and then, in spite of the most careful supervision, an excessive autoinoculation must take place. Such an overdose is readily recognized clinically. A patient doing well on the grade of work prescribed for him and with no abnormality of temperature, suddenly complains of feeling tired, of loss of appetite and of headache, and the temperature chart registers an elevation to 99° or 100° F. These are precisely the symptoms which are found during the negative phase after an excessive dose of bacterial vaccine."

Thus we have a new scientific test by which the effect of physical exercise on the blood of patients has been traced. As Inman says: "The opsonic index has shown that the exercise has supplied the stimulus needed to induce artificial auto-inoculation, and that this systematic graduation has regulated this in point of time and amount. This coöperation with the natural efforts of the blood has enabled Dr. Paterson to send his patients back to their accustomed work, however hard it may be. But the investigation has done more than explain a successful mode of treatment. Dr. Paterson agrees with me that with the aid of the opsonic index he can regulate the stimulus with scientific accuracy and obtain his results more certainly and more rapidly. This, of course, involves work in the laboratory. But it also means a more rapid and a more certain discharge of the patient which is the main object of the sanatorium."

At the King's Sanatorium, near Midhurst, England, light work in the garden and grounds is prescribed in lieu of some of the walking exercises and forms part of the regular treatment. Practical gardening in the grounds and flower beds, the lightest labor consisting of weeding, hoeing and edging paths and borders, gathering seeds, plucking dead flowers, pruning, etc. Somewhat harder exercise consists in wheeling soil to the lawns and spreading it, clearing ground of stones and taking them away in barrows and in leveling new ground after being broken up. The heaviest work is that of digging and trenching unbroken ground, moving, rolling, etc. Paths through the pine woods have also been constructed. In this particular work the breaking up of the ground with picks and clearing away roots from neighboring trees were allotted to the first division of patients. The second division cleared away

the broken ground and roughly leveled it. The third division finished the leveling of the paths with rakes and tidied up the edges.

The patients in the King's Sanatorium have made a cinder tennis court; they have cut down and sawed firewood; they have an open air carpenter shop and an instructor in carpentry, who is himself a patient; they care for the poultry and make the runs for the fowls. In this way six patients are constantly occupied. In the annual report the amount of labor and exercise performed by patients to the time of their discharge is regularly recorded.

It must not be assumed that work is to be employed in every case and at all times. At Frimley the system begins with almost more extreme rest than in any other sanatorium. Patients with a temperature of even 99° F., by mouth, and headache are sent to bed and are not allowed even to wash themselves and go to the lavatory. At all times and especially when graduated labor is employed, a careful watch is kept on temperature. The chief indications of "autoinoculation" are, according to Dr. Paterson:

1. Loss of appetite (usually means too hard work).
2. The patient appears to do his work as if it were an effort.
3. An irregular swinging temperature always below normal.
4. A temperature of 99° in early cases in men.
5. A temperature of 99° and headache.

Inman's main points are:

1. During the active (febrile) stage of pulmonary tuberculosis, autoinoculations occur spontaneously.

2. In a less active stage of the disease these autoinoculations do not occur spontaneously whilst the patient is at rest, but may be invoked by exercise or movements sufficient to affect the focus of disease.

3. These autoinoculations, "spontaneous" and "artificially produced," are evidenced by a variation in the tuberculo-opsonic index. This variation does not occur in non-tuberculous subjects.

4. If graduated exercises or labors are employed as methods of treatment for pulmonary tuberculosis it is essential to realize that "tuberculin elaborated from the patient" is being used.

5. Ninety-five per cent. of the patients investigated at the Brompton Hospital Sanatorium had opsonic indices above the normal sometime during the day. The patients, who were all doing appropriate work, had normal temperatures.

6. A rise in temperature corresponds with a negative opsonic phase, indicating an excessive autoinoculation, which may be checked by absolute rest.

7. If the opsonic index shows no variation as the result of hard exercise, whereas before such a variation had been obtained, this is presumptive evidence that the disease is arrested.

8. Evidence is brought forward to show that a class of patients who have undergone treatment for pulmonary tuberculosis may be classed as "arrest of disease, with persistence of tubercule bacilli in the sputum."

Fresh air, exercise and proper food seem then to constitute the foundation of successful treatment of tuberculosis. The improvement of the general condition of the patient and life in the open air evidently need to be supplemented by certain exercises so as to produce a series of autoinoculations and probably the best method yet devised is by the system of graduated labor just described.

All sorts of exercises, such as horseback riding, golfing, light dumb-bell exercises and other calisthenics have been practiced for many years in treating tuberculosis; walking exercises have been the feature of the German Sanatoria referred to; patients sent to the Western states and territories almost invariably practiced outdoor exercises, some with great harm and some with benefit. Neither physician nor patient in most instances regulated these exercises intelligently, but they were used empirically, never dreaming of the underlying principles as explained by the laboratory studies of Sir Almroth Wright, Paterson, Inman and others.

We trust that further studies and the more extensive application of the same method in Europe and America will fix the value of exercise in tuberculosis.

SYPHILIS IN ITS RELATION TO NERVOUS AND MENTAL DISEASES.*

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Among all the organs and tissues of the human body the nervous system constitutes a tissue of predilection for the syphilitic poison. The importance of the manifestations that syphilis is apt to produce in this particular part of the human economy is such that this question dominates largely the prognosis of syphilis.

The ravages created in the nervous system by this infectious and contagious disease have become scientifically known only in the middle of the nineteenth century. Before the beginning of that era, authors rarely spoke with precision of nervous manifestations of syphilis. In the middle of the eighteenth century Astruc and Morgagni treated for the first time syphilitic gummata in the cranium. Gradually anatomical data began to accumulate. To Virchow belongs the great merit of having established in a scientific manner the changes produced by syphilis in tissues in general and in the nervous substance particularly. He demonstrated that the specific lesion has its point of departure in the connective tissue and blood-vessels and the nervous system suffers secondarily. Since then remarkable works on the subjects appeared in Germany, France and England, all corroborating in the main features, Virchow's researches. Cerebral syphilis was the chief subject of those writers. Syphilis

* Read before the County Medical Society as a part of a Symposium on Syphilis, January 27, 1909.

of the spinal cord was less known. A few isolated observations referred only to syphilitic lesions of the vertebræ, such as exostoses, caries and gummata; the specific paraplegias were admitted as caused by those bony lesions. It is only comparatively recently that specific lesions of the cord tissue itself have been recognized as affections proper of the cord independently of the surrounding skeleton. This was accomplished through microscopical studies.

Nervous diseases of syphilitic origin are quite frequent. Nonne estimates their proportion 1 to 66 to other nervous diseases and 1 to 257 to diseases in general. Localizations of syphilitic lesions in the brain when compared with those of the cord are, according to Fournier, 6 to 1.

Syphilis may affect the nervous system at any phase of its evolution. There was a belief that the specific nervous diseases were characteristic exclusively of the tertiary period, but we know now that nervous phenomena may also appear in the secondary period of the affection: twelve, six and even three months after the initial chancre.

The effect of the syphilitic poison upon the nervous system according to our modern conception may be manifested speaking generally in two different forms. In one of them to which tabes and paresis belong, the lesions are not the direct and immediate result of syphilitic infection, but a late and secondary development (degeneration) against which the antisyphilitic treatment is practically powerless. They are the "parasyphilitic affections of Fournier." The other form is characterized by distinctly specific lesions due to the direct effect of syphilis. They are amenable to the antisyphilitic treatment, especially at the beginning.

Let us, therefore, consider separately cerebrospinal syphilis and the parasyphilitic affections, also syphilis of the peripheral nervous system and finally the relation of syphilis to mental disturbances.

It is, of course, self-understood that a detailed account of these affections cannot be expected as the subject is too vast for a brief discourse of a symposium. Only the most salient features will be emphasized.

Cerebrospinal Syphilis.—A simultaneous involvement of the brain and the spinal cord is by far more frequent in syphilis of the nervous system than an isolated affection of each of the two portions of the central nervous system. In the majority of cases the cerebral symptoms are more marked than the spinal.

Syphilis may affect the brain in two ways: either by localized gummatous formations or by diffuse lesions. In the first case the condition will be that of a cerebral tumor. The diffuse form is characterized by an obliterative inflammation of the walls of the blood-vessels and interstitial infiltration. In diffuse lesions the meninges are covered with a thick gelatinous exudate and as the cortex is almost always involved together with the meninges, the condition is a meningo-encephalitis. Syphilis has a special predilection for the blood-vessels of the base of the brain and as the meninges are exteremely vascular, they are always involved. Naturally the cranial nerves will suffer and among them the optic and the oculomotor nerves (third nerve) are most frequently affected. Since the lesion consists mainly of infiltrations of the vessel walls,

thrombosis or rupture of the latter is the consequence. Softening or destruction of cerebral tissue naturally follows. Should the damage occur in the motor area, convulsions or symptoms of paralysis will follow on the opposite side. A damage to the center or centers for speech will give place to aphasia. A specific thrombosis or a hemorrhage at the base of the brain will give place not only to a paralysis on the opposite side of the body, but also to a palsy of one or more cranial nerves on the side of the lesion, to a so-called "crossed paralysis." When the optic nerve is involved, there will be amblyopia or complete blindness. The clinical picture will therefore vary with the seat of the lesion.

Irrespective of the form or of a special localization, cerebral syphilis presents a prodromal period and some general symptoms which in addition to focal symptoms render the clinical picture somewhat characteristic.

Headache is the most constant and the earliest phenomenon. Its essential feature is to present exacerbations particularly at night or towards evening. What is also characteristic of the syphilitic headache is the fact that it yields with a remarkable facility to mercurials and iodids. Simultaneously with the pain in the head appear general apathy and indifference. The patient is languid, losses in appetite and in weight. Sometimes when the process is very acute as a result of acute specific meningitis the patient after a period of intense headache becomes stuporous and coma may follow. In other cases the condition may be the reverse; delirium, excitement, generalized convulsions take the place of depression.

When the disease runs a chronic course (chronic meningo-encephalitis) psychic disturbances may become conspicuous. They consist of mental feebleness, amnesia, apathy and, in advanced cases, of dementia. Delusions and hallucinations may also be present.

In spite of this mental condition the course of the disease is not progressive, is of long duration, and develops by successive, graduated attacks. When it reaches a certain degree of development, it remains stationary even for years. The sense of personality is preserved, the orientation in space and time is preserved; the old acquisitions do not disappear, but there is a diminution of fixed attention and the functions of the superior life are reduced to a minimum. Even the dementia, when it makes its appearance, is fragmentary and stationary, but not global and progressive.

The physical symptoms have also their characteristic features. The palsies of limbs, disturbances of speech, palsies of various cranial nerves mentioned above are all usually brief in duration, fugacious, transitory and disappear or improve promptly when under the influence of the specific treatment, but they reappear just as promptly. On the other hand because of repetition of attacks the damage done to the cerebral tissue or to the cranial nerves may be so intense that the lesion remains permanently. Therapeutic intervention undoubtedly modifies considerably the course of the disease, but it is powerless in hemorrhages and softening in the cerebral tissue. The prognosis may be good when the disease is treated early, but is grave in advanced cases.

The diagnosis of cerebral syphilis will therefore be based upon the following data:

1. Sudden onset of cerebral symptoms in an individual in the midst of apparently good health.

2. Headache of a special form (nocturnal headache).

3. Palsies of cranial nerves.

4. Hemiplegia, monoplegia, focal or generalized epilepsy.

5. The course of the disease: disappearance and reappearance of symptoms, their brief duration; multiplicity of symptoms.

6. Disappearance or prompt amelioration of symptoms under the influence of mercury and iodids.

7. The exclusive presence of lymphocytes in the cerebrospinal fluid.

Closely related to syphilis of the brain from several standpoints is paresis or general paralysis of the insane. The confusion between these two grave affections dates from a very long time and the reason of it lies partly in the fact that syphilis had been traced in the anamnesis of paretic individuals. Without entering into the very interesting historical review of the subject I will say that according to the statistics of Fournier and Erb 91 per cent. paretics have a syphilitic history and Bailly counts even 100 per cent.

Pathologically similar if not identical lesions are observed in cerebral syphilis and paresis. Here and there one sees chronic leptomeningitis, adherences of the piamater and infiltration of the vascular walls.

Clinically also there are cases in which the general and focal symptoms may, with equal right, be referred to either affection. For this reason cerebral syphilis had been considered by some as an aberrant form of paresis. These cases, of course, are not frequent, but in typical forms a confusion of the two maladies is not easy.

A brief review of the chief characteristic symptoms of this remarkable disease is now necessary.

After a more or less prolonged period of symptoms resembling neurasthenia gradual changes take place in the physical and intellectual spheres. Occasional epileptic seizures, palsies of ocular muscles, changes in the reflexes, irritability, depression or else excitability, impairment of memory, of moral sense, of obligations—these are the phenomena that characterize the initial period of paresis.

In the stage of full development the above symptoms become accentuated and important physical symptoms are added, viz., tremor of tongue, lips and hands; tremulous or spasmodic speech and disturbance of writing; visual disorders, such as Argyll-Robertson pupil, paradoxical pupil, optic atrophy; apoplectiform seizures; ataxic gait, Romberg's sign; trophic and vasomotor disturbances; involvement of sphincters. Psychically the paretic shows gross alterations in this period. The loss of memory is very marked. Dementia progressively increases. Delusions may be depressive or expansive. Hallucinations are not infrequent. Various morbid impulses are not rare.

In the last, terminal period, the above symptoms reach the height of their development, apoplectiform and epileptiform attacks are frequent, the

dementia is extreme. Death occurs either in the seizures or from some intercurrent disease.

Despite the apparently clear-cut picture of paresis just described and that of cerebrospinal syphilis described above, an embarrassment is sometimes experienced especially from the point of view of the mental symptoms. In such cases repeated examinations and prolonged observations are necessary. Fortunately in the majority of cases there are no special difficulties. It should be borne in mind that a proper discrimination between these two affections is essential, as the prognosis is quite different in either case. We have seen already that multiplicity of physical signs, showing various and simultaneous localizations in the nervous system; rapidity of development of symptoms and their sudden disappearance and reappearance, slightness of speech disturbance; early onset of optic neuritis, absence of distinct delusions, but presence of profound stupor, persistent diffuse headache, mostly nocturnal; bladder disturbances, disappearing and reappearing; all these symptoms are in favor of cerebrospinal syphilis.

Finally it should not be forgotten that in paresis a syphilitic infection antedates many years prior to the onset of its symptoms and the degenerative state of the brain tissue is a late development and not in direct relationship with the syphilitic poison, whatever it may be. We deal here with a parasyphilitic affection. In some cases of paresis a history of hereditary, not acquired, syphilis can be elicited. In syphilis of the brain there is a history of a comparatively recent infection and gummatous deposits or infiltrations are in direct relationship with the syphilitic poison. It is, therefore, a specific disease of the nervous tissue.

These few considerations lead to a logical therapeutic conduct when confronted with cases of this order. It stands to reason that in paresis the antisyphilitic treatment is practically inefficacious, while in cerebral syphilis it gives prompt results and when properly managed delays the recurrence of the symptoms.

Syphilis and the Spinal Cord.—Similarly to the brain we find here affections in which the lesions are distinctly specific and those that develop many years after the initial infection. To the latter belongs tabes. Again according to the statistics of the most authoritative observers in 95 per cent. of tabetics a history of an old chancre can be traced, or else a hereditary syphilitic infection is present. Some competent writers even say: "No syphilis, no tabes." The lesion in tabes is old, chronic and progressive; it is always limited chiefly to the posterior roots and columns; it is a degenerative condition followed by a sclerosis of the sensory neurones. Clinically it is manifested chiefly by shooting pains in the limbs, incoördination in station and gait, loss of tendon reflexes, pupillary changes and optic neuritis or atrophy, finally by an involvement of the sphincters.

When we turn our attention to distinctly specific lesions of the cord, we find a condition analogous to that of the brain. Besides solitary gummatous formations there is also a diffuse condition. The meninges as well as the tissue of the cord are involved. It is usually a meningomyelitis. The small blood-

vessels of the piamater are the point of origin for syphilitic infiltration. The maximum of cell infiltration is in the gray matter of the cord. All the vessels, arteries and veins in the cord are similarly affected. Narrowness of their lumen naturally follows, hence poverty of blood-supply and softening of nerve-tissue. Ascending and descending degeneration is the consequence. The membranes surrounding the cord become thickened and adhere to each other.

The symptomatology of this morbid condition is evident. The meninges being thickened compress the roots. Pain along the spine radiating to the limbs is the first symptom. It is usually aggravated at night. It is also accompanied by numbness, tingling in the limbs. As soon as the cord becomes involved, paralysis, at first flaccid and later spastic develops.

Sensory disturbances and sphincter disturbances appear early.

Spinal syphilis may assume the form of almost any of the cord diseases. All depends upon the predominant localization of the specific lesion. Thus when the posterior columns are involved it may resemble tabes, in lesions of the posterolateral columns—ataxic paraplegia, in lesions of cells of the anterior cornua—anterior poliomyelitis; in lesions of the gray as well as white matter —transverse myelitis. Syphilis may also play an etiological rôle in multiple sclerosis, as some observations seem to demonstrate it.[1] But what characterizes especially syphilitic meningomyelitis is the multiplicity of symptoms, their unequal distribution on both sides of the body, their variability and instability, their disappearance and reappearance, finally their modification when the patient is under treatment.

The remarks made above as to the difference in the nature, diagnosis and prognosis of paresis and cerebrospinal syphilis are with equal propriety applicable in the discussion of the nature, diagnosis and prognosis of tabes and spinal syphilis.

Tabes is a parasyphilitic affection, progressive in nature, characterized by a lesion strictly confined to the posterior columns, which cannot be modified by antisyphilitic medications, presenting consequently a grave prognosis. Spinal syphilis is due directly to a specific invasion of the meninges or more frequently of both meninges and cord, runs an irregular course, is easily modified by treatment and sometimes (though rarely) recoverable.

Syphilis and Peripheral Nerves.—In speaking of spinal syphilis mention was made of a compression of the roots by thickened meninges through which they pass. The nerve trunks in their course between the roots and their terminations may encounter syphilitic gummata in the tissues and undergo compression. But the peripheral nerves may be primarily affected by the specific poison present, resulting in a syphilitic endo- and perineuritis with obliteration of the blood-vessels and subsequent degeneration of the nerve fibers.

The clinical manifestations of syphilis of the peripheral nervous system are: Neuralgias, neuritis, multiple neuritis and root neuritis. Syphilitic neuralgias similarly to cerebrospinal syphilis occur in the early stages of the disease. Among all the cranial nerves the trigeminus is particularly a frequent

[1] Nouv. Icongr. de la Salpêt., 1906; Revue Méd. de l'Est, 1907.

seat. Of the cervical plexus the occipitalis major and minor nerves are quite often affected. The nerves of the upper extremities present rarely pure neuralgias, but the intercostal nerves are not rarely affected. Among the nerves of the lumbar and sacral plexus the sciatic nerve is the most frequently involved.

Clinically these neuralgias present the same symptomatology as neuralgias of any origin. In neuritis and polyneuritis we find the usual sensory and motor symptoms, viz., hyperasthesia and impairment or complete loss of power of the affected limbs and changes of reflexes.

Speaking generally syphilis rarely affects one nerve distribution. There are certain nerves more easily affected than others. Some nerves are very rarely involved. Thus, for example, in the seventh nerve, palsy is not a frequent occurrence. The writer has observed six cases of typical Bell's palsy distinctly of syphilitic nature which all recovered from exclusive use of mercurials and iodids.[2]

The clinical recognition of syphilitic neuritis or neuralgia is undoubtedly difficult, but when other remedies fail after a sufficiently reasonable time to remove the condition, and an antisyphilitic treatment promptly yields good results, great presumption is in favor of the specific nature of the disturbance, especially when a history of a comparatively recent infection is related and when aggravation of pain occurs mostly towards evening. The practical bearing of these remarks is too obvious to dwell upon.

Syphilis and Mental Diseases.—Many disturbances may be encountered in the secondary and tertiary periods. Those of the secondary period are genuine psychoses of toxi-infectious nature in this sense that they are due directly to the action of the specific poison and not to cerebral lesions caused by syphilis. They have not been the subject of a systematic study and for this reason are not well known. They usually appear at a time when the eruption or any other acute symptoms such as mucous patches, adenopathies, etc., develop. Similarly to mental symptoms ocurring in cases of other toxic conditions, the onset is sudden. Headache with insomnia appears first. Hebetude, stupor, somnolence, mental obtusion, lack of orientation, sometimes delirium and hallucinations with delusions of persecution, of poisoning, of assault appear next. Otherwise speaking we have here all the phenomena of confusional insanity. It must, however, be emphasized that the confusional, stuporous or delirious states of secondary syphilis present no special features distinguishable from those encountered in similar states caused by intoxications or infections of any other origin, except with regard to the effect of the specific treatment. The psychoses are always ameliorated and very often cured even in a short time. The acute forms with hallucinations and delirium are particularly amenable to the specific treatment. It is, therefore, evident that the psychoses of secondary syphilis are caused directly by the poison of the syphilitic infection.

The psychoses of the tertiary period have attracted greater attention than the preceding ones. They differ from the latter in this respect that they occur long after the initial infection and do not coincide with eruptions or other

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2 The Archives of Diagnosis, October, 1908.

secondary manifestations. They are due to meningo-encephalitis, obliterative endarteritis, and accompany usually motor symptoms, such as epileptic or apoplectic attacks, palsies of cranial nerves, etc. They are the manifestations of cerebral syphilis. We have already discussed the mental phenomena of the latter with its gradually oncoming dementia. We have also considered its characteristic features, viz., the exacerbations and amelioration and possibly complete recovery when energetic treatment is established. We have finally considered its relation to paresis and emphasized their differential diagnostic signs.

We cannot dismiss the subject without devoting a few lines to the relation of *hereditary syphilis* to mentality. Since attention was called to this possibility, observers began to recognize that certain organic nervous diseases, especially in childhood and adolescence, are very probably the result of hereditary syphilis. It is admitted, for example, that juvenile paresis is due to hereditary syphilis. But apart from organic nervous diseases, parental syphilis can be considered also as the cause of various mental abnormalities, such as imbecility, idiocy, of various psychoses of the young, of psychasthenias. Such individuals not infrequently presented in childhood or at puberty some external manifestations of syphilis, such as pupillary troubles, iritis, etc. Briefly speaking, hereditary syphilis is to be considered as an etiological factor in psychopathies.

Conclusion.—In my endeavor to present the subject of syphilis in its relation to the nervous system, I have unfortunately only approached it by reason of the limited time at my disposal. A thorough description of its various phases requires by far more considerable time than that allotted for a discourse as a part of a symposium. I have, however, I believe, sufficiently emphasized its main features in order to impress upon your minds the importance of the recognition of the fact that syphilis is a veritable poison to the nervous system. We may say without the least hesitation that of all the organs and tissues, the nervous system is the greatest sufferer in syphilitic individuals. Who doubts this statement should take a glance at the statistical studies of one of the greatest syphilographers. Fournier collected 3,429 cases of tertiary syphilis.[3] Among them he found 1,085 cases in which the nervous system was affected, while only in 787 cases cutaneous manifestations were present.

An individual who once contracted syphilis, is always predisposed to its assaults upon his nervous system. But there are individuals who escape this calamity. The specific poison makes a special selection among all varieties of nervous constitutions, particularly those who by reason of special hereditary or acquired influences, neuropathic so to speak, are attacked by syphilis. When confronted with such cases, our therapeutic effort must be directed not only to the advice as to mercurials and iodids, but also and especially, I may say, to a special mode of living surrounded by all precautions in regard to excesses of all sort, to the use of alcohol, to the proper hygiene and proper diet. In fact no patient whose nervous system I am called upon to treat for a

[3] Congrès Internat. de dermatol. et de Syphiligr., 1889, p. 302.

syphilitic invasion, leaves me without getting the most emphatic advice as to the general measures. And this advice must hold good for years and never cease. It is *preventive* medicine that we must practice, as this is the most rational and the most effective method. What are in reality the results of the two most energetic remedies we have at our command? In cerebral syphilis we may have, it is true, marvelous results, but also failures. In syphilis of the cord the proportion of failures is greater than that of successes. In tabes some favorable results are obtained when the disease is attacked at its earliest moment; otherwise there is absolute failure as far as the degeneration of the nervous substance is concerned. The same remarks are applicable to paresis.

It is, therefore, evident that too much reliance cannot and should not be placed on the two great remedies which, however, have no equal in therapeutics. They are admirable remedies, but are far from being infallible in syphilitic nervous diseases. On the other hand when, in addition to mercury and iodids, we submit our patients to a most rigorous hygienic mode of living we can expect very satisfactory results. We also know, that when a paretic, a tabetic or an individual suffering from cerebrospinal syphilis comes under our care in the earliest stages, our efforts are the most satisfactory. The recent discovery of the spirochætæ, let us hope, will perhaps place in our possession a specific serum for combating one of the most dreadful of all our poisons; dreadful because it produces ravages in the most important of all the tissues of the organism and threatens the community with a population of imbeciles, idiots, epileptics, tabetics and paretics. The subject is, therefore, reduced to the *prevention of the initial infection,* but this question is out of my scope; its solution requires the combined effort of physician, civic worker and legislator.

REPORT OF CASE OF TUBERCULOSIS OF THE OVARY TREATED WITH TUBERCULIN.

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Patient, age 24, married, weight 100½ pounds, applied for treatment on August 30, 1905, with the following history:

Several years ago had a cough which lasted for several months after which it ceased. Two years previous to application for treatment she had left ovary removed, which was found to be tubercular. At the same time the right ovary showed signs of tubercular condition, but on account of the promise made by the surgeon to remove only one ovary, this was not removed at the time.

For the past six months the condition of the ovary had grown rapidly worse and preparations had been made for its removal. She suddenly decided she would not have it removed, and applied for treatment.

On examination I found in the region of the right ovary a nodular mass apparently about two inches in diameter. The tissues were densely infiltrated,

the infiltration apparently extending along the tube. The mass was very tender on pressure and she complained of a constant dragging feeling and, at times, excruciating pain in this region. Preceding her menstrual flow the pain was very severe, being worse each alternate month for the past six months. The pain abated somewhat after the menstrual flow was established, but the soreness continued excessive for several days following.

Examination of the chest revealed evidence of tubercular infection at the apices of the lungs, being most intense in the right, which was active at this time. The chest had been examined by Dr. Pottenger, March 2, 1905, and similar conditions found but less active. Her temperature ranged from 97.8 in the morning to 99.6 in the afternoon. The pulse from 86 to 100.

I advised her to return to her surgeon and have the operation as first contemplated. This she positively declined to do at this time, and she was admitted to the sanatorium for treatment.

On account of pain she had moved about but little for several weeks. After admission she was kept very quiet for several weeks, but was confined constantly to her bed only during the times of exacerbation of pain.

She was given $\frac{1}{100}$ of a mg. of the solid substance of watery extract of tubercle bacilli (Von Ruck) as an initial dose, which was gradually increased. Her temperature gradually declined until the range was from 98.2 to 99 in about three weeks; during this time menstruation had occurred, and during the premenstrual period there had been slight exacerbation of temperature with symptoms of pain, swelling and tenderness greatly aggravated.

The administration of the watery extract was continued with gradually increasing doses. If increased too rapidly discomfort, together with some stimulation of the mass as indicated by slight swelling and increased tenderness would occur, with a slight rise of temperature, giving evidence of a slight tuberculin reaction. This occurred several times during treatment, the first time October 6th, thirty-six days after beginning treatment, following a dose 1.7 mg. of the solid substance of the watery extract. This was accompanied by slight local reaction in the foci in the lungs. This was sufficient to remove any doubt which might have existed, as regards the nature of the infection. The tumor gradually decreased in size, tenderness gradually disappeared, the discomfort at the menstrual time became less, until finally the subjective symptoms disappeared and there remained a firm mass about one-quarter the size of the original tumor when she presented herself for treatment. Temperature range was 98.4 to 98.8. Weight 119½, a gain of 19½ pounds. The tubercular condition of the lungs was apparently healed.

The maximum dose of the watery extract was given on September 5, 1906, twelve months after the beginning of treatment, and was 1500 mg. of the one-per-cent. solution of watery extract of tubercle bacilli, or 15 mg. of the solid extract. On December 8th, gave 10 mg. of Koch's tuberculin without reaction, also gave several doses, finally reaching 500 mg. of one-per-cent. solution of watery extract of tubercle bacilli, March, 1907, without reaction.

Since treatment was discontinued I have had opportunity to observe the case, and examination within the last week showed the cicatricial tissue and

the mass smaller than at the time of discharge. She is entirely free from pain preceding her menstrual period, and is apparently in good health.

My especial object in reporting this case is to urge for consideration the relation which I believe to properly exist between the constitutional and surgical treatment of this class of cases, as well as the ordinarily recognized "surgical cases" of tuberculosis in general. I do not wish to be understood that the culture products will always act as well as is apparent in this case, but I think it possible that if taken early, many cases which otherwise would go on to require operation might be cured without operation. And I further believe the use of these remedies before and following operative procedure will be of valuable assistance to the surgeon.

I desire also to call attention once more to the value of tuberculin as a diagnostic agent in doubtful cases. In this connection I desire to state that I believe, from recent investigations by Spengler and others, that many surgical cases are due to bovine infection and for the same reason, and my own experience with bovine tuberculin, that tests should be made with bovine tuberculin, if there is no reaction with Koch's tuberculin.

Principally against the use of tuberculin after its introduction as a diagnostic agent was Virchow and some of his students. Their findings were made on a comparatively few patients and following repeated injections of large doses. This opposition has continued to manifest itself. As against these, and that others recognize the value of tuberculin as a diagnostic and remedial agent in surgical cases, I invite attention to the following:

1. "Birnbaum found tuberculin of the greatest assistance in 17 cases, both for differentiation and treatment. One of his patients was apparently in perfect health nine years after operative cure of a peritoneal and genital tuberculous affection. She returned to ask if she could marry; the pronounced reaction to the tuberculin test decided the question. In another case nodules in the breast of a pregnant woman suggested a tuberculous affection, but the tuberculin test was negative. Later surgical treatment showed the nodules to be enchondromas. The fœtus did not seem to be affected by the tuberculin in any of the cases in which it was given. Birnbaum expresses regret that gynecologists pay so little heed to tuberculin."[1]

2. "Baer and Kennard detail the results they have obtained from the use of tuberculin in orthopedic surgery. Forty private patients were injected. The cases were selected almost invariably in order to clear up the diagnosis. Twenty-five gave a positive and 15 a negative reaction. Of the former, 6 were subsequently operated on and all proved to be tuberculous. In 18 of the remaining 19 cases the diagnosis was verified by the subsequent history and the response to treatment. The remaining case is a recent one and therefore not available. Of the 15 patients who did not react, one was operated on and no evidence of tuberculosis was found; of the other 14, 8 have recovered under non-tuberculous treatment; the remaining 6 are improved and all suspicion of tuberculosis has been removed. Radiographs were taken of 15 of the 25 cases which reacted to tuberculin. Six showed a focus, in 5 the disease was suspected only, and 4 showed no lesion. The authors considered tuberculin the

best and most reliable diagnostic agent for incipient tuberculosis of bones and joints. Its proper administration is attended by no permanent harmful effects."[2]

Tinker reports four hundred cases,[3] confirming the above results.

3. Dr. Jewett V. Reed states: "The result of our examination of 965 inmates showed 24 to be in an advanced stage of tubercular disease, and 102 who gave a definite tuberculin reaction, making a total of 126, or nearly 13 per cent." . . . . "A year has now passed since the above work was done, and while we do not possess accurate statistics as to the number of inmates afflicted with tuberculosis at present in the institution, many facts go to show that there has been a decrease in the disease. During the year ending August 1, 1904, there have been ten deaths from tuberculosis, which contrast favorably with the eighteen deaths that occurred the previous year. After making our tuberculin tests we found that the great majority of men who gave a reaction were those who were constantly coming to morning sick-call. During the past year the total number of inmates attending sick-call has been 40 per cent. less than the year before.

These few facts are enough to convince us that we are working in the right direction toward the management of prison tuberculosis, and we feel that the results thus far obtained fully repay us for our work.[4]

4. "S. Kemp[5] writes of a case of tuberculosis of adnexa diagnosed with tuberculin. The patient was a housemaid, aged 24, scrofulous as a child, and otherwise healthy until abdominal and slight pulmonary symptoms developed, varying in intensity during three years, with their reappearance later. Pains in the iliac region, especially on the left side, were frequent, and the girl became much emaciated. The tuberculin was positive and tuberculous lesions were found in the tubes and one ovary, which were removed, leaving the other ovary. The patient rapidly recovered and no further symptoms have been observed either from the lungs or the abdomen. The case was rendered especially interesting by the lack of any local reaction in the lungs after the injection of tuberculin. This indicated that the lung process had healed, and encouraged operative treatment of the gynecologic tuberculous process. With the exception of the tuberculin reaction, none of the symptoms were pathognomonic of a tuberculous affection. Sarwey says that the tuberculin test has been applied in gynecology only ten times to date, according to the literature. Bossi, Meyer and Birnbaum used it in ten cases, with a positive response in six. Absolutely negative findings indicate the non-tuberculous character of the lesions, or at least they do not require active operative intervention. A positive response without any local reaction also speaks against a gynecologic tuberculous affection."[6]

Many other references might be cited but I believe these to be sufficient for the purposes for which this paper was written.

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[1] Tuberculin Diagnosis of Genital Tuberculosis, Journal of the American Medical Association, July 21, 1906, page 240, paragraph 39.

[2] Journal of the American Medical Association, Jan. 28, 1905, page 326, paragraph 41.
[3] Johns Hopkins Hospital, Report of 1905.
[4] Journal of the American Medical Association, Jan. 28, 1905, page 326, paragraph 41.
[5] Archiv f. klinische Chirurgie LXXXI, Avs. Practical Medicine Series, vol. iv, page 88, 1907.
[6] Management of Prison Tuberculosis, Journal of the American Medical Association, Feb. 4, 1905, pages 385-6.

ADRENAL EXTRACT IN ADDISON'S DISEASE.

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The grafting of adrenals into the tissues of cases of Addison's disease to compensate for the functions of these organs when these are more or less inhibited by local disease, has led to such unfortunate results, so far, that Courmont,[1] after a personal experience in the use of this procedure, declared that it should be considered as formally contraindicated. Indeed, Bra,[2] after grafting the suprarenals of a dog into the cellular tissue of the abdomen in a child of fourteen years, witnessed its death in three days. Jaboulay,[3] having resorted to the same method in two cases, lost both within twenty-four hours, owing, he honestly admits, to the operation. The same result followed in Courmont's case. If this question is closely analyzed, however, it becomes apparent that it is not the method proper, or the operators that are responsible for the untoward results, but rather the fact that the functions of the adrenals were still too obscure, at the time the operations were performed, to afford the indications necessary for a judicious adjustment of the quantity of adrenal tissue grafted to the needs of each particular case.

Again, E. W. Adams[4] refers to a group of seven cases, including three of those mentioned above, "in which alarming or fatal results were presumably or possibly due to the treatment." He mentions, for instance, two cases reported by Affleck[5] treated with "suprarenal gland-extract." The chart notes include the laconic words: "Alarming collapse. One of the cases began to improve markedly when the extract was stopped." In the original paper reference is made to another case treated by suprarenal extract in which "similar collapse was noted." The dose was not mentioned. Such cases are apt to be regarded as examples of the sudden death sometimes observed in Addison's disease, to which Addison himself, Dieulafoy, Anderson, Bradbury and others have called attention; but this explanation does not hold. Guiol,[6] having observed similar signs of intoxication and collapse, tried the "remedy" in a normal subject and obtained the same morbid phenomena. Here, again, we are dealing with fatalities which occurred when the physiological functions of the organs, and therefore their mode of action as a therapeutic agent, were but slightly known.

Can we say, however, that the ten and more years which have elapsed since these cases were reported, have brought out data which would aid us

to explain these morbid results? Judging from text-books of physiology, they have not. Beyond the fact, discovered fifteen years ago by Oliver and Schäfer, that the adrenal secretion influences powerfully the tone of the heart and blood-vessels, and Langlois's equally important demonstration that it served to neutralize certain products of metabolism, we have Blum's observation that adrenal preparations caused glycosuria, and Josué's that they could produce arterial sclerosis. Yet none of these phenomena can be regarded as a function; it is not, for instance, the purpose of the adrenal secretion to raise the blood-pressure, to cause glycosuria or arteriosclerosis, etc. Text-books of therapeutics, beyond rehearsing these facts, serve only to add obscurity to the problem as a whole by discussing phenomena of intoxication—paralysis, for instance—which occur in frogs and other animals, but that have not so far, been observed in man. In a word, physiology and pharmacology to this day have failed to point out the actual purpose of the adrenals in the body and to tell us *how* grafting or toxic doses of adrenal preparations produce death. As will be shown presently, however, my views alone, of the contributions on the subject recorded during the last ten years, not only explain the manner in which death was caused by grafting and by excessive doses of adrenal extract, but they afford the physician precise indications for the safe and rational use of these remedial agents.

Courmont,[7] referring to the three cases in which dog's adrenals were grafted in cases of Addison's disease, including one of his own, writes: "In the three cases the result was disastrous. In my own case the patient died in twenty-four hours with a *formidable hyperthermia* and cardiac collapse" while specifying that there was no infection of the wound. Now, this phenomenon, which has remained obscure, is readily accounted for by the interpretation of the rôle of the adrenals I submitted six years ago,[8] and which many independent facts have since sustained, viz.: (1) that the function of the adrenal secretion is to take up the oxygen of the air in the pulmonary alveoli, and to carry this gas to the tissues as a constituent of oxyhæmoglobin, and (2) that as such, it is the adrenal secretion which, as far as the rôle of oxygen is concerned, sustains oxidation and metabolism.

The cause of the "formidable hyperthermia" mentioned by Courmont is thus rendered self-evident. Schäfer,[9] judging from the action of adrenal preparations on the blood-pressure, states that "in order to produce a maximal effect, a dose of not more than fourteen millionths of a gm. of the active material per kilo of body-weight is all that is necessary." Now, the average adult weighing 70 kilos, one milligram (1/60 grain) of the active material approximately will suffice to produce this maximal effect. What should we expect from two dogs' adrenals grafted into the tissues, which means that the active material is being continuously absorbed by lymphatics and veins and carried to the lungs, and thence, laden with oxygen, to all parts of the organism? Most violent oxidation, of course, and "formidable hyperthermia."

It becomes a question, however, whether adrenal preparations actually

produce an increase of temperature. As I have occasion to state elsewhere[10] this phenomenon was noted, though unexplained, by Oliver and Schäfer.[11] Reichert[12] recorded a rise of 1° F. in rabbits, accompanied by increased metabolism. Morel[13] observed a rise of 0.9° to 1.8° F. in guinea-pigs. Lépine[14] states that the increase of blood-pressure caused by adrenal extract is always followed by a rise of temperature. This is controlled by the familiar fact, pointed out by Brown-Séquard, that removal of the adrenals is followed by a steady decline of temperature, and by the hypothermia which attends Addison's disease.

The toxic phenomena observed after excessive doses of adrenal preparations are due to the same morbid process, *i.e.*, excessive oxidation, the effects of which can be followed at every step. Tracing the course of events from start to finish we have, at first, the effects of exaggerated tissue metabolism: in the tissues, a *rise of temperature;* in the cerebro-spinal system, *excitement;* in the muscles, *tremor;* in the kidneys, *polyuria;* in the myocardium, *violent palpitations;* in the muscular coats of vessels, *rise of blood-pressure.* As the blood-pressure increases passive pulmonary congestion occurs, causing *dyspnœa,* and, at times, *pulmonary œdema.* As the vascular constriction becomes still greater, the pressure in the aorta becomes so marked that *substernal pain* is experienced, and the pulmonary circulation being blocked, *asphyxia* follows—the heart, in most instances of poisoning, continuing to beat a short time after respiration has ceased. In cases of Addison's disease we have, besides, the transition from the hypothermia peculiar to this affection to a febrile state, the adrenal preparation having restored to the blood the principle which (because of lesions in the adrenals or their extrinsic nerve supply) was secreted in insufficient quantity to sustain metabolism, *i.e.*, the vital process. The danger lies, in these cases, in exciting *excessive* oxidation and tissue metabolism, thus causing such intense vaso-constriction that the resulting rise of blood-pressure is sufficient, as shown above, to endanger life itself.

What can we expect from the use of adrenal extractives in Addison's disease?

A series of 120 cases collected from literature within my reach, including 97 previously collected by E. W. Adams,[15] in all of which adrenal preparations had been used in some form, gave the following results:

1. Cases in which death can be ascribed to grafting or adrenal preparations	8
2. Cases in which the benefit was slight or nil	51
3. Cases in which marked improvement occurred	36
4. Cases in which permanent benefit was obtained	25
	120

Analysis of these cases shows clearly that far better results can be obtained in the future by a careful adjustment of the dosage to the actual needs of each individual case. Addison's disease being due, from my viewpoint, to inadequate oxygenation and metabolic activity, the result in turn

of a deficient production of the adrenal secretion, it follows that *the temperature and blood-pressure indicate the degree to which the adrenals are still performing their functions.* It is plain, therefore, that our aim should be *to supply only just enough adrenal extractive to compensate for the deficiency of adrenal secretion produced.*

It is astonishing with what small proportion of the subject's own adrenals, the rest being destroyed by organic disease, will sustain the vital process. Gourfein[16] showed that one-twentieth of both organs sufficed. Moreover, a number of cases on record indicate that a mere vestige will do so, and that it is only when this vestige is destroyed that life ceases. In a case of Bramwell's,[17] for instance, the organs were replaced by masses of fat. In one of Osler's[18] the adrenals "were sclerotic and had completely disappeared." The prevailing practice of giving a full dose of an adrenal preparation to begin with and then pushing the remedy until enormous doses are given—supposedly because of the most unscientific notion that if a small dose will do good very large doses will do correspondingly more good—is therefore most dangerous.

The 25 cases of Addison's disease in which, out of the 120 referred to above, permanent benefit occurred, include one, treated by Bate[19] in which but $\frac{1}{12}$ grain (0.005 Gm.) of adrenal extract three times daily caused very great and lasting improvement with marked lessening of the bronzing. When the remedy could not be obtained temporarily, which occurred twice, the case relapsed. On the other hand, Suckling[20] began with 10 grains daily and gradually increased until 175 grains were given each day, and also obtained favorable results. That in Bate's case the adrenals were still able almost to carry on their function is self-evident; while in Suckling's the remedy practically compensated for the adrenals (while the local morbid process in them was still active, and such as to paralyze their functions—a fact well shown by the severity of the case when the use of the extract was begun). The average dose is probably that used by Weigall[21] in a very severe case—5 grains, increased to 10 grains, of the extract three times a day. The patient increased six pounds in two weeks, and after about three months fifty-six pounds. In other words, in the 25 cases of permanent benefit, although the remedy was used empirically it so happened in all probability, that *the doses employed coincided with the needs of the organism.* In the 51 cases in which no benefit was obtained several occur in which failure was evidently due to inadequate dosage or to too early cessation of the treatment, while in others excessive doses—practically in every instance a too rapid or excessive increase of the dose—as clearly prevented a successful issue.

In the cases in which grafting was resorted to, the dose represented, we have seen, was out of all proportion in excess of the needs of the patients, although the belief that the two adrenals grafted into the abdominal tissues were necessary to replace the supposedly destroyed adrenals seemed to be warranted. It is important to bear in mind, however, in this connection, that it does not follow that because we have two adrenals, the full activity of the organs is brought into play. We have seen that all evidence available indi-

cates that but one-twentieth of their secretion suffices to sustain physiological oxidation. Two ungoverned adrenals, inserted into the tissues, cannot but evoke the phenomenon observed, therefore, *i.e.,* excessive and even deadly oxidation.

On the whole, the one great factor in the treatment of Addison's disease by means of adrenal extractives is to drop their *empirical* use, and it is only (and this applies to the use of any disease) when the importance of this fact will have been thoroughly grasped that the proportion of recoveries will be materially increased.

The salient guides in the use of these preparations are the *low temperature,* which denotes deficient oxidation and metabolism, and the *weak pulse,* which points to a low vascular tension and inadequate cardiac dynamism. Improvement of a given case is indicated by a gradual resumption of normal conditions in these two directions, and by the return of bodily vigor, with more or less fading of the pigmentation. As a rule, the more these various morbid phenomena are marked, the larger will be the initial dose required. In other words, marked hypothermia, a very feeble pulse, advanced bronzing and great debility will indicate that a mere vestige of both adrenals is still active; the dose indicated then is that which will supply enough additional principle to raise the temperature and the blood-pressure to normal, but *not beyond.* A study of the 120 above-mentioned cases has shown that 5 grains (0.30 Gm.) of the extract, three times daily, was the most satisfactory dose to start with. If this fails to raise the temperature and the pulse tension, the dose should be increased by 5 grains *per day* until it does, the case being watched closely. As soon as the normal temperature is reached, the dose should cease to be increased, unless a tendency to recurrence of the hypothermia (gradually as the adrenals are being destroyed by the local morbid process) should render it necessary. In less advanced cases, the initial doses should be correspondingly small 4, 3, 2 or even 1 grain of the extract being administered three times daily, the dose decreasing in proportion as the disease is less advanced.

Can we expect a cure from adrenal preparations? In most cases of Addison's disease the local process is tubercular—often limited to the adrenals. A number of examples suggest, however, that the tubercular process itself was benefited, and even cured by the use of adrenal extract. This is quite in accord with the view I have advanced, and sustained by considerable evidence,[8] that the adrenal secretion sustains the efficiency of the immunizing mechanism.

A number of cases are on record in which, after apparent recovery, the cases died suddenly soon after ceasing the use of adrenal preparations. It is evident that even the possibility of curing the morbid process in the adrenals does not replace the destroyed adrenal tissue. It is here that grafting would be of curative value, but only provided *small fragments of adrenal tissue* be inserted, and gradually increased in number until the temperature and pulse indicate that compensation for the functionless areas in the adrenals has been insured.

The 120 cases analyzed show, and my own experience has further demonstrated, that what is generally known as "adrenal extract," but which, in reality, is the desiccated adrenal gland (*the glandulæ suprarenales siccæ* of the U. S. P.) is by far the most satisfactory agent to use. Injections of adrenal fluid extracts are exceedingly painful—a fact which compromises the issue by introducing the element of shock—while the active principles, epinephrin, adrenalin, suprarenalin, etc., sometimes fail altogether to act, owing to their becoming oxidized and rendered inert while being absorbed. The fresh gland is, as a rule, repulsive to the patient, and tends to aggravate the tendency to nausea and vomiting.

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Cyclopædia of Current Literature

ACROMEGALY, CARDIOVASCULAR CHANGES IN.

Enlargement of the heart, either simple or associated with a myocarditis, is the condition usually found in acromegaly. Sclerosis of the arteries and degenerative lesions affecting the walls of the veins, with dilatation and subsequent obliteration of their lumen, are constantly present. These changes in the heart and vessels should be considered as much a part of the clinical picture as the changes in the bones, and they are probably due to the prolonged hypertension of the vessels, the result of hypersecretion of the pituitary body. John Phillips (Medical Record, February 20, 1909).

ANTITOXINS, ORAL ADMINISTRATION OF.

Inhibition of digestion permits the absorption of toxins and antitoxins from the stomach. By treating children as follows, the oral introduction of antitoxin has given uniform and satisfactory results: When possible no food for at least four hours before administering the serum; one hour before giving the serum a glass of one-per-cent. sodium bicarbonate solution is given; and with the antitoxic serum is given one minim of a fluidextract of opium and from four to ten minims of a saturated solution of salol in chloroform. In 19 children and hundreds of animals treated along these lines serum sickness did not occur. The authors believe that the oral method may be preferred for prophylaxis because of the ease, the absence of danger, and the small cost. For curative purposes, however, the hypodermic method can not yet be replaced. In animals toxins by the mouth may produce a high immunity by absorption of the toxin promoted by the means mentioned. C. T. McClintock and W. King (Journal of Infectious Diseases, February, 1909).

BROMIDE ERUPTION.

Bromide eruption may occur in those who are susceptible, independent of the dose of the drug or the length of the administration. The larger the dosage, and the longer the ingestion, the greater is the chance of an outbreak. There are practically no constitutional or subjective symptoms in most cases. Because of the slow elimination, the eruption may continue to appear for some weeks after the drug has been discontinued. Almost any type of eruption may be present; in childhood the lesions are usually larger and more persistent than in adult life. The extremities and the face are the parts most frequently attacked; the most extensive eruption, in the majority of the cases, occurs upon the legs. Lesions have a great tendency to occur at points of previous inflammation, such as on vaccination scars, injuries, etc. F. C. Knowles (New York Medical Journal, March 20, 1909).

BRONCHITIS, CHRONIC, TREATMENT OF.

Causal treatment does not receive sufficient consideration in chronic bronchitis, due to the fact that its etiology is very complex and not always discoverable. A patient with bronchitic tendencies is always in a state of insufficient resistance to bacterial invasion and should as much as possible be kept away from exposure to infection. Autoinfection is more common than is supposed.

The writer emphasizes the importance of the removal of secretion and describes the various classes of remedies employed therefor. The remedies are divided into those that act by increasing fluidification of the expectoration, by rousing irritation so that increased efforts are made for its propulsion, and by drying up the secretion. In chronic bronchitis it is rarely necessary to employ the second of these three kinds. Of the first group the author prefers ammonium chloride, ipecac, the alkalies and pilocarpin; of the last group, turpentine, benzoates, creosote and its preparations or derivatives, eucalyptus and tar. The same effects follow inhalations as are produced by medicines. Intratracheal injection seems to be followed by good results. In ordinary cases postural treatment is best for the removal of secretion from the bronchial tubes. Heroin may be tried in small doses (0.004 to 0.008 gram, $\frac{1}{16}$ to $\frac{1}{8}$ grain), but it is more toxic than morphin and heroinism does occur. F.

Forchheimer (American Journal Medical Sciences, February, 1909).

ECTOPIC GESTATION.

The diagnosis must first be assured. Patients with suspicious symptoms, spotting, cramps, fainting, collapse, amenorrhœa, accessory symptoms of pregnancy, insufficient change in the shape of the uterus, assuming pregnancy to be present, or a mass near the uterus, should be kept under close observation or placed in a hospital. Forcible examinations should not be made, nor should curettage be performed until every possibility of ectopic gestation has been excluded. If the condition does not improve in two or three days and hæmatocele has not formed, abdominal section should be performed. It should be done at once if fainting or collapse occurs during the period of waiting. In well defined hæmatocele vaginal section with evacuation and drainage may suffice. If a patient is first seen in collapse, immediate operation is safer than waiting. If in extreme collapse there should be rapid abdominal section followed by measures to combat both hæmorrhage and shock. It is better to interfere unnecessarily early than too late. R. T. Frank (American Journal of Obstetrics, February, 1909).

ECZEMA, CHRONIC, IN INFANTS.

Real chronic eczema of infants is a constitutional disease and must be differentiated from various forms of dermatitis that likewise affect infants. The etiology of such eczema depends upon two factors, congenital predisposition and feeding. Two forms must be distinguished, one of them the weeping eczema of the head, and the other the disseminated dry eczema. The first usually attacks well-nourished children with a pasty complexion. In addition to the hairy parts of the scalp, the regions of the ears, nose and cheeks may be affected by the eruptions. Hands and arms may likewise show the same lesions. Overfeeding and chronic constipation are the usual concomitants of this, the seborrhœic form of eczema. Improvement and cure usually follow the change from pure milk diet to mixed diet at the end of the first year. The second variety of eczema occurs almost exclusively in artificially fed children. Such children are weak, pale and thin. The eruption is not as strikingly evident as in the first form, and consists of scattered patches of dry, scaly infiltrated lesions that may be found over the whole body.

While local treatment of these forms of disease must be used in every case to make the children comfortable, the cure depends not upon this treatment, but upon changes in the diet of the children. Reduction of milk is the principal point of managing these cases, and carbohydrate food must be given to make up the deficiency in the foodstuffs. After the fourth month of age this is very easy, as the child can be fed on various cereal preparations and also given fruit juice. In later months the albumin of eggs must be avoided, as it is as badly borne as the milk proteids. Whey mixtures may be used in cases where the child is too young to take any other food but some form of milk. The whey may be modified with sugar and cereal gruel, a diet with which Finkelstein had great success in the treatment of eczematous children. Freer (Münchener medizinische Wochenschrift, January 19, 1908; Medical Record, February 20, 1909).

FOOD INTOXICATION IN INFANCY.

The writer discusses the alimentary intoxication of infants. It is a metabolic intoxication caused by the giving of

food which produces toxic products of an inadequate metabolism, which may lead to fatal consequences, but disappears when the food is withheld. Certain foods, however, give rise to these effects, and the author insists on the importance of the fats and sugars in the infant's food. The proteids he considers comparatively harmless. The exact nature of the toxines is unknown. The condition is probably analogous to an acid intoxication, and the theory that it is due to alimentary rather than to bacterial toxines is supported by the absence of lesions in the alimentary canal, the absence of any micro-organism associated with it, the ready cure by withdrawal of food, the widely different conditions with which it is associated, and the lack of putrefactive or fermentative products that are caused by bacterial activity within the intestines. The treatment is, therefore, indicated: The withdrawal of food will produce a normal temperature and absence of evident intoxication in from 24 to 72 hours. The child can be given plenty of water, sweetened with saccharin, one grain to the quart; a little barley water is harmless or weak tea can be given, as is done so much in German clinics. When the baby is no longer toxic we can give a little skim milk—from 5 to 10 ounces in the barley water in the day's food. If this is well borne for a day or two one can safely add a small amount of sugar and gradually increase it to the amount for a normal healthy child; but only after weeks or months can whole milk be begun with safety under careful control and watched. The severer the case the slower must be the progress. Joseph Brennemann (Journal American Medical Association, February 27, 1909).

HEART IN PULMONARY TUBERCULOSIS.

Pulmonary stenosis is always the primary heart lesion with pulmonary tuberculosis, mitral insufficiency and aortic insufficiency being usually secondary. The most frequent secondary cardiac lesion in patients who are able to be about is mitral stenosis. Pulmonary tuberculosis occurs more frequently with patients who have pulmonary stenosis than in any other form of cardiac disease. Mitral insufficiency is associated with pulmonary tuberculosis more frequently than any other form of valvular disease, but aortic insufficiency is almost as frequent. Aortic stenosis is rarely a complication of pulmonary tuberculosis and involvement of several valves simultaneously rarely occurs. The treatment is the same which would be proper if tuberculosis were not present. An elevation of more than 2,000 feet is inadvisable, unless the heart is well compensated. Overexertion must be avoided, arsenic, strychnine, ice-bags, carbonic acid baths, massage, rest at first and careful exercise later, are measures that will be found useful. L. Brown (American Journal of the Medical Sciences, February, 1909).

ICHTHYOSIS AND THE THYROID GLAND.

Certain cases of ichthyosis coincide either with thyroid lesions or with manifestations of dysthyreoidia, and it is logical to attribute the cutaneous troubles to these lesions as in a number of cases treatment directed to the thyroid has caused myxœdema and ichthyosis to disappear. The writers also think that certain cases attributed to hereditary syphilis should be referred to thyroid lesions, consecutive or not upon this disease. It is universally admitted that the thyroid gland presides over the nutrition of the subcutaneous cellular tissue and of the skin, and therefore it is logical to

admit its intervention in the evolution of ichthyosis. E. Weill and G. Mouriquand (La presse médicale, February 17, 1909; New York Medical Journal, March 20, 1909).

INFANTILE SCORBUTUS, EARLY DIAGNOSIS OF.

The writer emphasizes the importance of early diagnosis of infantile scorbutus. The picture of the affection, as outlined in the text-books, is one which applies to cases in which the disease has gained full headway; the patient has suffered for some length of time and has developed the full symptomatology of the disease. The disease follows invariably in the wake of some error of nutrition, or, in artificially fed infants, on an error in the composition of the food, wholesome or otherwise, or in its treatment after having been made up for the infant. Cases also occur in breast-fed infants when the breast may have had a denutritional composition, or in infants partaking of raw milk, excellent in itself, but given to the infant in a denutritional state. This should always be borne in mind, as the physician is apt to reject the possibility of scorbutus if the infant is taking raw milk. Many infants taking sterilized food never develop symptoms of scorbutus, and in others symptoms may be held in abeyance by the administration of fruit juices. It is exceedingly uncommon to see the disease in infants before the age of 5 months. The writer believes, therefore, that scorbutus may develop in any infant whose food is, or has been constructed on denutritional lines.

The first signs of latent or incipient scorbutus are a mild form of anæmia, pain in the bones and joints only elicited by pressure or manipulation, and the appearance of blood in the excretions or in the vicinity of the bones or periosteum. It is not an uncommon experience to see scorbutus in infants, at about the sixth month of life, who are apparently thriving, and who give absolutely no symptoms such as would lead one to suspect any scorbutic tendency. In such infants the teeth may not have erupted. Deep pressure on the tibiæ will cause these children to wince, as if there were some tenderness of the bone. Formerly this was interpreted as being due to rickets. Such infants may be rachitic, but the tenderness in question is scorbutic. The test of the correctness of this supposition, in the face of the absence of any symptoms otherwise of scorbutus, is the rapid response of such infants to a change in the diet toward warding off the full development of scorbutus. H. Koplik (Archives of Diagnosis, January, 1909).

INFLUENZA AND ŒDEMA OF THE EYELIDS.

A series of ten or twelve cases of influenza are reported by the writer, in which œdema of the eyelids was a prominent symptom. The usual history was that the patient went to bed well, but waked with marked œdema. There was no redness, or at most a faint pinkish tinge. At this stage there were no general symptoms. During the next twenty-four hours a bad headache developed, strictly localized to the supra-orbital region. The œdema advanced till the eyes were completely closed, and might spread downward into the cheeks. In at least half the cases there was deep congestion, often accompanied by œdema of the conjunctiva, but there was no discharge. The temperature never rose above 101° F. In more than half the cases the above symptoms constituted all the illness; but in a fair proportion, perhaps nearly half, after a few days, as the

œdema receded the ordinary symptoms of influenza set in, and there were pains in the back, legs, etc., and great prostration. The urine was normal. Most of the cases occurred in women. There was little doubt of the influenzal origin of the œdema. About half the patients had other influenzal symptoms, and of those who did not, many were found to reside in a house where influenza was prevalent. No cases were recorded apart from an epidemic of influenza. The diagnosis may be hard or impossible in an isolated case, and frontal sinusitis or angioneurotic œdema may be considered. The presence of other influenzal symptoms will soon clear up the difficulty, however. The prognosis is excellent. The usual lines of treatment for influenza should be followed. Cold compresses or cold boric eye washes hasten the subsidence of the œdema. N. I. Spriggs (British Medical Journal, December 12, 1908).

OPIUM HABIT.

The treatment should consist in elimination. The patient must be rid of his stored toxines, his system disembarrassed of the excess, and his manufacture of new toxines reduced to that point at which he will need no opiate inhibition to make him comfortable. If elimination is thus established he will find the need for opiate lessening with each discharge of excretory material, and it will be merely a matter of time when he will need none. The impacted colon should be emptied, the masses of toxines stored in the liver loosened, the renal action kept up to its highest level of efficacy, the skin incited to aid in throwing off the toxic products whenever there is evidence of their active presence in the blood. Meanwhile, a non-nitrogenous diet should be given, and the patient kept at rest as absolutely as circumstances permit.

The means to be employed to secure these ends vary with each case, and the physician who treats such maladies must be qualified to fit his treatment to the varying indications that are present. But time must be allowed for the altered conditions to be established, for the patient to learn to live without drugs, for the various organs to accustom themselves to functionate independently of drug control. It is not too much to exact a year's absolute rest, of real playtime, after the cessation of the habit. During this period the metabolism is apt to fall into arrears, and toxines tend to acccumulate. One of the most significant symptoms of this period is a subnormal temperature. Another, usually accompanying it, is respiratory oppression. These demand instant action, in emptying the bowels, unloading the liver, and stimulating all the vital functions by the use of that priceless vitalizer, strychnine; juglandin, and salines should be always at the patient's disposal, and he himself should be carefully instructed in their application, so that he may be independent of the chance practitioner, who may be of the sort who look on "suffering as an indication for morphine." With a year of rest, properly so-called, there is no reason for any cured patient relapsing. W. F. Waugh (Medical Record, December 26, 1908).

RHEUMATISM, ACUTE AND SUBACUTE, EFFECTIVE TREATMENT OF.

The writer commends the use of sodium salicylate in the treatment of acute and subacute rheumatism, but says that its employment has been restricted by fear of cardiac depression and the bad taste of the remedy. It should be used more freely and con-

tinued for a longer time. The cardiac changes result from the disease, however, and not from the remedy. The author always finds dilatation of the left ventricle. As long as the evening temperature rises above normal, the disease is still present, and the remedy should be continued. The addition of bicarbonate of sodium in an amount always double that of the salicylate is a very effectual means of diminishing the unpleasant effects of the latter. The initial dose of sodium salicylate may be 15 grains for an adult; for a child from seven to twelve years, 10 grains; and below this age, 5 grains; the daily totals being 150, 100 and 50 grains respectively. With these larger doses the pain rapidly abates and the joint swellings subside. The fever falls, and there is little tendency to relapse. The improvement in the heart wall muscle is often most striking. In bad cardiac cases and those associated with pericardial inflammation, the author commends the application of ice to the præcordium. The lower extremities must be kept warm, and any considerable dilatation of the right auricle must be relieved by leeches before the ice is applied. The indications for leeches are an extension of the cardiac dullness in the fourth right intercostal space to two finger-breadths, rapid respiration, restlessness, and some cyanosis in the lips and face. D. B. Lees (British Medical Journal, January 16, 1909).

THYMUS AND THE NERVOUS SYSTEM, RELATIONS BETWEEN.

The writer has found that removal of the thymus of young dogs caused exceptional excitability of the peripheral nervous system, as shown by electric tests. This throws new light on the relations between the thymus and nervous system. Experimental research has convinced the writer that the parathyroid bodies are not exclusively responsible for the etiology of tetany, but rather that a whole group of allied organs are involved. Among these the thymus takes a prominent place as reacting the most readily to general disturbances. In normal conditions the thymus seems to be connected with the growth of the body and the development of the bones in early life, and also with a certain reaction of the motor apparatus to the electric current. K. Basch (Jahrbuch für Kinderheilkunde, December; Journal of the American Medical Association, January 30, 1909).

WHOOPING-COUGH, TREATMENT OF.

Quinine and antipyrine can be depended on to abort or attenuate pertussis, but, as usually given, the dislike of the child to take the medicine leads to inadequate dosage or to its total neglect. This can be obviated by injecting a solution of the drug into the rectum. The solubility of the antipyrine commends it for the purpose, and the writer has 1 Gm. (15 grains) dissolved in 25 Gm. warm water, injected three times a day, for a child over twelve, with smaller doses for younger children. No ill effects have ever been noticed on the heart, while, when the injections are commenced early, the disease is frequently aborted. It does not depress the appetite given in this way, and the therapeutic effect seems to be constant and reliable. Senftleben (Deutsche medizinische Wochenschrift, January 14, 1909; Journal of the American Medical Association, February 20, 1909).

Book Reviews

REPORT OF COMMITTEE ON BUILDING OF MODEL HOUSES. By Gen. George M. Sternberg, M.D., LL.D., Chairman of the Committee. Washington: The President's Homes Commission, 1908.

This report is worthy of review at some length, by reason of the importance of the subject. Lack of space, however, forbids more than to call to the attention of the profession the work of this exceedingly valuable commission. No one factor is of higher importance in the conservation of health than that of suitable homes for the poor, especially in large cities. Accessibility to light and air is at all times of primary significance in the prevention of communicable diseases, especially tuberculosis. The subject will be dealt with in an editorial by the reviewer later.—J. M. T.

PASTORAL MEDICINE: A Hand-book for the Catholic Clergy. By Alexander E. Sanford, M.D. New Edition, Revised and Enlarged by a Chapter on the "Moment of Death," by Rev. Walter M. Drum, S.J., etc. New York: Joseph Wagner, 1905.

It is interesting to note that, in at least one of the organized religious bodies, does the subject of pastoral medicine secure attention. Not only is this particular text-book, so far as the reviewer is able to estimate, given due attention by the Roman Catholic Church, but we are informed that there are several other books, dealing with the same subject, which are used largely by the priests as guides in helping in matters of health and personal hygiene. Dr. Sanford's book, since coming into our possession, has been read by several leading clergymen whose opinion was solicited who testify uniformly to its excellency, and we can do no better than to urge on all clergymen that they familiarize themselves with at least one of these books, so that they may be better qualified for complete fulfilment of their duty to their flocks.—J. M. T.

THE SEMI-INSANE AND THE SEMI-RESPONSIBLE. (Demifous et Demiresponsables.) By Joseph Grasset, Professor of Clinical Medicine at the Montpellier University; National Member of the French Academy of Medicine, etc. Authorized American Edition. Translated by Smith Ely Jelliffe, M.D., Ph.D., etc. New York and London: Funk & Wagnalls Company, 1907.

This American edition of Grasset's classical work, though published in 1907, came into our hands but recently. It is a matter for regret that scanty space forbids discussing it at length, but suffice it to say that it deals with a peculiarly important subject, on which most physicians, and almost all clergymen, are conspicuously ignorant. As to lawyers, it is a typical fact that in law human beings are divided into two sharp-cut classes: the wholly responsible and the wholly irresponsible. It has been a favorite subject with the reviewer to call attention to that large group of borderland conditions which have been entitled by Grasset the *demifous et demiresponsables*, which, being interpreted strictly, will be found to include over forty per cent. of the population. It is manifest that endless blunders must be made by legislators, as well as by physicians and clergymen in dealing with every-day problems, unless they achieve a well-rounded comprehension of the actual facts in respect to variations in mental status.

While this book is in a sense technical, being written chiefly for physicians, nevertheless, many of the chapters are of such fascinating literary quality and so full of information necessary for a large group of thinking people, and especially for those who assume responsibility as guides to human conduct, that it is well worthy of general reading. The first chapter alone, entitled "The Semi-Insane in Literature and on the Stage," will serve to give a good impression of what it is necessary to know to realize the extent and importance of the subject. Other chapters follow, technical in kind; then Chapter IV, "The Social Value of the Semi-Insane," is exceedingly interesting, citing instances of well-known individuals who have enjoyed wide influence and reached distinction in various fields, yet may have incidentally done

vastly more harm than good, while fully admitting all the good they may have performed. Then, again, Chapter V, "Rights and Duties of Society Toward the Semi-Insane," is filled with important warnings and explanations.

The reviewer cannot too strongly urge that every clergyman should become familiar with the salient points of this exceedingly interesting subject. Physicians, many of them at least, doubtless become aware—usually most vaguely—that the conditions herein described exist, but painfully few of them have such accuracy of knowledge as to enable them to deal adequately with the problems arising, and which must arise frequently in the experience of everyone who undertakes the responsibility of curing deranged humanity.—J. M. T.

Disorders of the Bladder. By Fallon Cabot, M.D. 8vo, 225 Pages. 41 Illustrations, 1 Colored Plate. Prepaid, $2.00. New York: E. B. Treat & Co., 1909.

This little book is designed to teach general practitioners the principal methods of diagnosing and treating disorders of the urinary bladder, and particularly the use of the cystoscope. It is a record of personal experience chiefly, rather than a treatise. There are two special chapters, one on the "Anatomy of Kidneys, Ureters Bladder," etc., by Dr. George W. Warner, and the other on "Urinalysis," by Professor H. T. Brooks. No doubt this book will prove of excellent utility.—J. M. T.

Bacterial Food Poisoning: A Concise Exposition of the Etiology, Bacteriology, Pathology, Symptomatology, Prophylaxis and Treatment of So-called Ptomaine Poisoning. By Professor Dr. A. Dieudonné, Munich. Authorized Translation, edited, with additions, by Dr. Charles Frederick Bolduan. 8vo, 128 Pages. Cloth. Prepaid, $1.00 net. New York: E. B. Treat & Co., 1909.

The subject of auto-intoxication and allied toxemias is of much importance, and it is necessary that pracitioners should have in their hands authoritative data, brought well up-to-date. The subjects treated are poisoning through meat, fish and molluscs, cheese, ice cream and puddings, potatoes, canned goods, and finally metallic poisons. Through the untiring and courageous efforts of Dr. Harvey W. Wiley and his final triumph in the passage and enforcement of the Pure Food Act will perhaps make the clinical need for such a book as this less imperative, nevertheless, it must prove of great service. We can never expect the American citizen to exercise sufficient care in selection, preparation and eating of food. This book will put the clinician in possession of facts scarcely otherwise obtainable.—J. M. T.

Reference Hand-Book for Nurses. By Amanda K. Beck. Second Edition, Revised. W. B. Saunders Company, 1908.

Of all the books for nurses that have come under the reviewer's notice, this seems the most commendable for several reasons: it is a succinct, clear presentation of current views on a number of subjects which a nurse may have sudden need to know and recall to mind. Some of the chapters are written by special contributors and signed, which adds to their authoritativeness. Several very good illustrations and diagrams are introduced, and at the end are some blank leaves for memonranda. It is neatly gotten up, with rounded corners and flexible boards, and will no doubt prove a great comfort to many forgetful nurses.—J. M. T.

Diseases of the Spinal Cord. By R. T. Williamson, M.D. (London), F.R.C.P., Lecturer in Medicine at Victoria University, Manchester, etc. Seven Plates and 136 Illustrations. Henry Frowde, Oxford University Press, and Hodder and Stoughton, Warwick Square, E. C., 1908.

Dr. Williamson has furnished an excellent review—for it claims to be no more—of the whole subject of spinal cord disorders. It is full enough for the average physician, well illustrated and admirably systematic. The illustrations are, with one exception, from the author's own drawings and photographs, or from microphotographs of his own sections and unusually good. The book is based upon regular lectures given by the author at the Manchester Medical School during the past fifteen years. Dr. Williamson acknowledegs his indebtedness to a large number of authorities, more particularly the German, but including some Americans. The book is distinctly attractive in style and arrangement, and the reviewer has already enjoyed the reading of it.—J. M. T.

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Clinical Lectures

TINEA VERSICOLOR.

BY JOHN V. SHOEMAKER, M.D., LL.D.,
Professor of Materia Medica, Therapeutics, Clinical Medicine, and Diseases of the Skin, in the Medico-Chirurgical College and Hospital of Philadelphia.

GENTLEMEN: The patient before you to-day confronts us with a chronic parasitic disease.

There are no subjective symptoms or internal physical signs present referable to his present condition. He is twenty-eight years old and is a machinist by occupation. His family history is negative as to the cause or heredity of this disease. Upon physical examination nothing abnormal can be elicited over his abdominal or thoracic organs.

Present Illness.—The patient states that three years ago he noticed that small, oval, erythematous, slightly elevated spots developed upon his abdomen, back, chest, shoulders, arms and thighs. In a short time these lesions became more numerous upon his chest and abdomen. As time went on these lesions increased in size by peripheral extension and others frequently coalesced to form irregular patches with a sharp outline. The affected area is covered with fine, furfuraceous, mealy scales. These scales are loose, scanty and adherent and are always less after the patient has cleansed himself. The scales are very easily scraped off due to their fineness. At first they were light yellow but now they are of a yellowish-brown color.

Sometimes they form a paste when the patient perspires freely, which thus causes the patient to feel very uncomfortable. He says that the itching which he experiences is of a mild character.

The patient does not present any constitutional symptoms and he is otherwise in good health.

Diagnosis.—From the character and distribution of the eruption, its location upon the chest and abdomen, the yellowish color of the lesions and the tendency to form scales we diagnose this case as tinea versicolor.

In doubtful cases the microscope will decide the question and leave little doubt as to the character of the disease.

Differential Diagnosis.—The resemblance between tinea versicolor and the lesions of chloasma, vitiligo, lentigo and the macular syphilide is only superficial.

Tinea Versicolor.	*Chloasma.*
1. Affects the horny layer.	1. Consists of more or less pigmentation of the mucous layer of the epidermis.
2. Patches are elevated and composed of furfuraceous scales.	2. Patches are smooth and not elevated.
3. Face is rarely involved.	3. Face is frequently involved.

Tinea Versicolor.	*Vitiligo.*
1. Circumscribed areas are discolored.	1. Circumscribed areas are white.
2. Patches are elevated.	2. Borders of the patches are more or less pigmented and smooth.

Tinea Versicolor.	*Lentigo.*
1. Patches rarely involve the face.	1. Patches frequently involve the face.
2. Lesions are not covered with scales.	2. Lesions are not covered with scale.
3. Patches are elevated.	3. Patches are smooth and not elevated.

Tinea Versicolor.	*Macular Syphilide.*
1. Color of the lesions may vary from a light-yellow to a dark-brown.	1. Color is never a decided yellow.
2. Eruption is elevated and composed of furfuraceous scales.	2. Eruptions show neither elevation nor desquamation.
3. Color of patches varies from a light-yellow to a dark-brown.	3. Color is a coppery hue.
4. No history of infection.	4. History of infection.
5. Lesions rarely occur on the face and hands.	5. Lesions may occur on any part of the body.
6. Absence of syphilitic manifestations.	6. Other manifestations of syphilis present.

Pathology.—The parasite of tinea versicolor does not attack the hair and nails, and only superficially involves the epidermis.

The lesions are largely composed of the spores and mycelium of the microsporon furfur. The corneous layer is permeated with a luxuriant growth of mycelium. It does not penetrate the rete mucosæ.

If the scales be detached from a spot and placed in a drop of liquor potassa, and then examined with a microscope; we will see the mycelium composed of short, angular threads, which frequently terminate in spores. The spores are oval, rounded and highly refractive bodies. They may be isolated or appear in clusters varying in size from .0023 to .0084 millimeters in diameter. The spores manifest a tendency to cluster and are found in aggregations.

Etiology.—The cause of tinea versicolor is the vegetable parasite microsporon furfur. The disease occurs more frequently in persons with harsh skins than those whose integument is soft and delicate. It attacks either sex,

rich and poor, robust and weak and also those individuals who bathe as well as those who do not bathe. The disease is contagious to a mild degree and it is thought that the spores are deposited in the underclothing of the patient either through the water which was used to wash the patient's clothing or through the air. This disease is especially liable to attack phthisical individuals.

Treatment.—A radical cure of this disease is not as easily accomplished as might be inferred from the light manner in which many writers refer to the subject.

Patients usually receive an apparent cure but soon the disease returns because the parasite had not been entirely destroyed. Persons suffering from phthisis, scrofula or anæmia who are more predisposed will improve quicker when constitutional and external remedies are both employed. The principal treatment must, of course, be local in order to destroy the parasite. Water seems to increase the activity of the fungus and promotes the spreading of the involved areas, therefore bathing the parts is interdicted. The parts should be cleaned by a lotion containing:

℞ Thymolis ..... ʒj.
Alcoholis ..... fʒij.
Glycerini ..... fʒiv.
Misce. Signa. Apply locally.

This lotion will keep the spots clean, remove all the sebaceous deposits from the surface and act at the same time as a mild antiparasitic. After this treatment has been carried out for a few days and the scales soften and become detached so that a stronger antiparasitic may be applied in the form of an ointment.

The most effective remedy is the oleate of copper either diluted with oleic acid or made into an ointment ten to twenty per cent., with lard. The salts of copper possess marked antiseptic and antiparasitic properties of which the oleate admits of the most simple and most thorough application. It not only destroys the parasite on the surface but by a deeply penetrating action arrests its development in the interstices of the epidermic cells. No parasitic skin disease yields so readily to any one remedy as tinea versicolor will to the oleate of copper. I have succeeded in relieving and permanently curing many obstinate cases of this disease. It is not necessary to apply the oleate in large quantities because it will readily penetrate the skin while a large amount smeared upon the skin will only discolor the linen without being of additional service.

This treatment should be continued until discoloration and scales are no longer present and a new healthy surface has formed.

I have removed the patches by the daily application of alcohol with friction, or alcohol with boric acid or betanaphthol.

Among the remedies valuable are one-per-cent. ointments of phenol, chrysarobin, picrotoxin; creolin; and a fifteen-per-cent. solution of chloral hydrate.

Prognosis.—If this patient will carry out our treatment faithfully for a few weeks he will be cured entirely. If the parasite is not absolutely eradicated, the disease will reappear in the course of a few months.

THYROTOMY FOR TUMOR OF THE LEFT VOCAL CORD AND EXCESSIVE MOBILITY OF THE TONGUE.

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THYROTOMY FOR TUMOR OF THE LEFT VOCAL CORD.

In July, 1908, R. H., 62 years old, came to the Presbyterian Hospital complaining of hoarseness of several months' duration. Examination of the larynx revealed a tumor involving almost the entire length of the left vocal cord. In appearance the growth was slightly pink with numerous papillæ. Realizing that it would be impossible to remove so extensive a mass by the intralaryngeal method and convinced from the age of the patient that it was malignant, I advised laryngo-fissure which was accepted. July 10th, with the assistance of Doctors Goldbach and Ellingwood, a preliminary tracheotomy was done under chloroform anæsthesia. The patient was then placed in the Trendelenberg position and the skin and fascia divided from the hyoid bone to the incision below. With the thyroid cartilage exposed an opening was made into the cricothyroid membrane and the thyroid divided with a knife directly in the angle. There was free hemorrhage from the laryngeal mucous membrane which soon ceased under the application of cocaine and adrenalin. The wings of the thyroid were carefully pulled apart with blunt retractors and the growth exposed. The entire cord together with all tissue down to the cartilage was removed with knife and scissors after which the wound was thoroughly cauterized. An attempt was made to suture the wings with catgut but the cartilage was so hard the sutures refused to hold; they were finally brought together as well as possible and the overlying fascia sewed with catgut. The skin was sutured with silk. The patient was put to bed with the foot raised and rectal feeding resorted to for two days. The bed was gradually lowered until the third day the patient's head and feet were on the same level. On the third day there was no difficulty swallowing liquid food. The tracheal cannula was removed the fourth day and the tracheal wound allowed to close. Recovery was uneventful and the patient was sent home in two weeks practically well. He was advised to use his voice with great care for a month. In the place of the cord removed, a band of tissue has formed which approximates with the right cord in such manner that his voice is better than before the operation. The growth was examined by Dr. J. L. Hirsch, who made a diagnosis of adenoma. Though the clinical diagnosis of malignancy was not confirmed by the microscope, we feel that at the patient's time of life, laryngo-fissure was the proper operation. Such growths in elderly people are often the forerunner of malignancy. The regeneration of the vocal cord after removal has been studied by Citelli and Fraenkel. Fraenkel has reported two

Tumor of left cord presenting typical cauliflower appearance through direct laryngoscope. Entire cord removed by thyrotomy.

instances of repair of the extirpated cord; in one patient it was so nearly perfect that one could distinguish no difference between the two cords while in the other, repair was complete in four months. Garel cited a similar case. In Revue Hebdomadaire de Laryngologie for January 9, 1909, Lannois and Durand report a case of complete regeneration of the vocal cord after removal for epithelioma. About three weeks after laryngo-fissure the new formed cord replaced entirely the old one and on phonation approached the middle line of the larynx; it was a little larger than the old cord.

EXCESSIVE MOBILITY OF THE TONGUE.

Cases of abnormal lingual mobility have been recorded but few rhinologists see such a curiosity in years of practice. Through the kindness of Dr. H. F. Reckard I have recently seen such a case which is of sufficient interest to place on record. The history of the patient is as follows: About two years ago he noticed an unusual mobility of his tongue; he caught himself in the act of pushing the organ backward into the nasopharynx. The act soon became a fixed habit from which he was unable to free himself. The mobility of the tongue worries him and he consulted Dr. Reckard in the hope of getting relief from his peculiar habit. When the patient opens his mouth, the tongue is seen in the normal position; asked to push it back into the nasopharynx, he curls the tip backward and upward and quickly pushes it back of the soft palate. He then forces the tongue proper into the nasopharynx until only the frænum is visible below the velum palati. Though the throat seems entirely filled with the organ, the patient has no trouble breathing. When the tongue is in the postnasal space, the soft palate bulges strongly forward. The patient was exhibited at the January meeting of the Laryngological Society; Doctors Merrick and Rosenheim were the only members present who had seen similar cases.

In a short article on "Acquired Excessive Mobility" (enabling the tongue to be projected into the nasopharynx), Butlin says: "A curious series of cases has been described, all practically identical, yet the widely distant position of the observers and the impossibility of one patient having heard of a previous case, force one to believe that the mobility has been acquired quite spontaneously with the object of obtaining relief from a chronic and tiresome affection. Jurist, Wherry, Bourdette, Winslow and others were the observers. The patients have all been young adult men suffering from marked atrophic rhinitis and pharyngitis, who, after continuous efforts extending over some two months, have been able to curl back the tip of the tongue and project it into the nasopharynx. The tip of the tongue could thus lick the nasopharynx, and the patients felt much relief by the moistening of the surface and the removal of the sticky mucopus and crusts. With the tip of the tongue the patients could feel the posterior nares and the orifices of the Eustachian tube. No drawback was experienced from this increased mobility; the frænum was, of

course, much stretched and one or two patients said they had felt cracks in it whilst trying to curl the tongue back."

Dr. Reckard has informed me that his patient had no signs of atrophy or of dryness in the nasopharynx.

Original Articles

THE CANCER PROBLEM.*

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In the present era of preventative medicine and educational methods in vogue inculcating the lessons of right living, there are few diseases but show a decrease in their mortality rate. Cancer is, perhaps, of all others, the one disease which shows a progressive increase, and which is likely to continue to progress, inasmuch as we know practically nothing definite of its etiology and, consequently, cannot in any way lessen materially its frequency. Few, perhaps, except those who have studied its ravages, realize what a scourge this most dreadful disease is.

In 1901, in the registration area of the United States which represented a population of 31,292,130, there died, 20,171 persons, of cancer. A mortality rate of 64.5 per 100,000 population. In 1906, of a population of 40,996,317, the deaths numbered 29,020, or a rate of 70.8 per 100,000 population. This shows an increase of 6.3 per 100,000 population for six years. In the registration area of the United States the deaths from cancer from 1901 to 1906, inclusive, were as follows:

1901	20,171	1904	23,395
1902	20,847	1905	24,330
1903	22,325	1906	29,020

Total from 1901 to 1906, 140,088. These figures, large as they are, are not so startling when compared with a disease like tuberculosis, unless we realize that the latter disease kills at all ages and that practically all the deaths from cancer occur after the age of thirty-five.

Quoting from Summers[1] "Vital statistics show, that although a much greater percentage of the population reach middle life than formerly, fewer people reach old age, *i.e.*, the saving of life in modern times has mainly been confined to the pre-cancerous years of existence, the death rates for males over thirty-five and females over forty-five having remained almost stationary, while the numbers attaining old age have decreased" (Williams). "The increase in the death rate from cancer can only in small measure be accounted for by increased

* Read before the Northern Medical Society, Philadelphia, March 26, 1909.

skill in diagnosis and more accurate vital statistics. In England, while the population barely doubled (1850-1905), the cancer mortality increased more than sixfold (Williams) and all reliable vital statistics go to show that this increase in cancer mortality is universal."

The following table shows the annual average death rate per 100,000 population from 1901 to 1905, with the increase or decrease between these years:

Country.	*Rate.*		*Increase.*	*Decrease.*
Switzerland	129.1		3.3	
Netherlands	97.4		6.2	
Norway	92.9	to 1904	8.9	
England and Wales	86.5		4.1	
Scotland	82.8	to 1904	2.8	
German Empire	76.8	to 1904	5.1	
Victoria, Australia	74.5		8.3	
Austria	73.5	to 1903		6.
Ireland	68.6		6.8	
New Zealand	67.4			2.1
South Australia	67.2			7.0
Prussia	65.4		7.5	
New South Wales	64.2		4.4	
Queensland	56.9		11.3	
Tasmania	55.9			7.9
Italy	54.9		3.9	
Japan	52.3	to 1903	1.3	
West Australia	44.5		9.5	
Spain	44.3		3.3	
Hungary	38.8		2.2	
Jamaica	16.1		4.8	
Servia	9.7		.8	
Ceylon	5.6			.7
United States	68.3		6.8	

From these figures it will be seen, that, with the exception of Austria, New Zealand, South Australia, Tasmania and Ceylon, all other countries show a progressive increase in the cancer mortality rate.

"In England, the registrar-general's report shows that, in 1906, out of a total of 141,241 deaths of males over thirty-five years of age, 12,695 died from cancer; and out of a total of 140,607 deaths of females over thirty-five years of age, 17,671 died from cancer. This means that one man in eleven over thirty-five years of age will die of cancer and that one woman in eight over thirty-five years of age will die of cancer. In England the cancer death rate for 1905 was, for each 100,000 living 75.6 for males and 100.5 for females; the corresponding phthisis rates being for males, 134.7 and for females, 95.7. This shows that more women die of cancer than of tuberculosis." (Summers)

I have been at work for some time studying American statistics and, while definite conclusions have not been reached, I can state that the American figures are nearly in accord with the English statistics.

The 140,088 deaths which occurred in the registration area of the United States from 1901 to 1906, were distributed as follows:

Cancer of the mouth	4,326
Cancer of stomach and liver	51,398
Cancer of the intestines	14,934
Cancer of female genitals	20,404
Cancer of the breast	4,683
Cancer of other and unspecified organs	32,697

Their order of frequency expressed in percentages being:

Stomach and liver	36.4 per cent.
Other and unspecified organs	23.7 per cent.
Female genitals	14.7 per cent.
Intestines	10.5 per cent.
Breast	8.3 per cent.
Skin	3.3 per cent.
Mouth	3.0 per cent.

During these years increases in the rates of death were shown in cancer of stomach and liver, 1.8 per cent.; mouth, .4 per cent.; intestines, .6 per cent.; skin, .1 per cent. Decreases occurred in female genitals, .4 per cent.; heart, .1 per cent.; other and unspecified organs, 2.4 per cent. The latter decrease being due in part to more exact specification of the site of the disease.

In the light of the foregoing figures it is needless to enter into a lengthy discussion to prove that in cancer we have a problem, the solution of which is vital to the race and one in which the medical profession should take an intense interest.

How is this problem to be solved? Unquestionably by the painstaking work of the army of men who are devoting their lives to the study of the disease in the laboratories and clinics throughout the world. Eventually the cause of cancer will be discovered and then and not till then can we hope for any measure that will completely prevent its ravages.

The embryonic theory of Cohnheim and the inclusion theory of Ribbert are no longer tenable. The work of Gaylord, Clowes, Calkins, Hanan, Loeb and Ehrlich in the laboratories of research have been of surpassing interest and value, but the nature of the cause is distant as ever. Bashford[2] says: "The successful application of the comparative and experimental methods appears to be greatly narrowing the field of inquiry and dismissing many explanations of cause—previously held with good reason—from further serious consideration. Although this is the case we still know very little as to its etiology beyond the fact that it manifests itself under the most divergent conditions and in such a way that we may have to entertain the possibility of several etiological factors, some of which are external and some internal to the body. To these factors we are only justified at present in assigning an indirect and mediate etiological significance. The most satisfactory explanation of the causation of cancer will probably be that implied by the accurate description of the nature of the transformation of normal into cancer cells when this advancement in knowledge shall have been attained."

Cullen,[3] discusses etiology under the following headings:

Hereditary,
Traumatism,
Embryonic Cell Inclusion,
Ribberts Theory,
The Parasitic Origin of Cancer,
Cancer as a Primary Disease of the Epithelium.

In conclusion he states: "Summing up the various analyses as to the causation of carcinoma, we find that heredity seems to have little influence;

trauma as produced by parturition apparently bears a causal relation to cancer of the cervix but not to that of the body. Neither the theory of Cohnheim nor that of Ribbert explain its origin; and the weight of evidence is against the parasitic origin. The result of many investigations, while giving us an increased knowledge concerning the histological structure of carcinoma, have still left its etiology an unsettled question.

Anders, in a recent article[4] says: "Recent personal observations joined with certain theoretical considerations, have led to the conviction that all the ascertained facts relating to gastric carcinoma harmonize with the microbic origin of the disease. The clinical and pathological phenomena observed are clearly referable to a common origin, a bacillus or parasite. Indeed many experimentalists have taken cognizance of this truth and taken their bearings accordingly, so that eminently satisfactory expositions of the general subject are to be found in recent medical literature. Unfortunately, however, the medical profession is still confronted with a mass of conflicting views and hypotheses. "I would here briefly state a series of facts, which show that the disease under consideration and microbic diseases as a class are identical as to cause and operation." He then goes on to record the observations of Hanan, Loeb, Gaylord, Ehrlich, Jensen and others.

Roger Williams in his recent work "The Natural History of Cancer," bombards with shot and shell, the parasitic origin of cancer.

Roswell Park[5] states unhesitatingly his belief in the parasitic origin of the disease. "We may still believe with Virchow that carcinoma is an epithelial neoplasm whose component cells are not conforming themselves to normal habits or appearances. Around this truism the orthodox pathologists and histologists have built a number of theories endeavoring to explain the reasons of such changes. And thus, at the autopsy table and in the laboratory, they continue to gaze through brass tubes and bits of beautifully polished glass, seeking in this way to-day to find the answer to the most difficult problem in pathology. And while doing all this they have been studying mainly its terminal condition, coming into little or no personal contact with the disease in its early and living forms, and having little, if any, concept of it in the living, while failing to be struck by the evidences of infectivity which every observant clinician cannot fail to note. His belief is based on clinical and experimental evidences." Other writers, taking exactly the same evidence as Park, have proven, at least, to their own satisfaction, the fallacy of the parasitic origin.

While we can be hopeful that the work being done will result in the discovery of the cause and prevention of the disease, we must realize that at the present we have no knowledge that would enable us to treat with the condition from an understanding of its full import nor is there any reason to believe that the question promises an early solution. We must realize then that we are facing a vital problem and must combat it with the weapons at hand.

How then, shall we handle this problem? Only from the standpoint of cure and in a small part, at least, from that of prevention. As to the latter, I have reference to the traumatisms of parturition in relation to cervical cancer.

It is now a universally accepted belief that cervical lacerations predispose to cancer. Cullen[6] states: "In fifty of our cases of squamous-cell carcinoma of the cervix, in which accurate data were available,[7] 49 (98 per cent.) had had children, while 17 of the 50 had miscarried."

"When one considers the large number of women who remain unmarried, and finds that nearly all of the victims of squamous-cell carcinoma of the cervix have had children, one cannot but conclude that the injuries incidental to labor have a potent influence in the development of this variety of cancer."

Penrose[8] says: "Cancer of the cervix is a disease of the child-bearing woman. It is very rare in the woman who has never conceived. Statistics show that women who develop cancer of the cervix have borne on an average five children.

Ashton[9] states: "So far as our present knowledge serves us, it is important that lacerations of the cervix should be viewed in the light of a dangerous predisposing cause."

"The obstetrician before discharging a patient after confinement, should examine the cervix, and if a laceration is found to be present, it should be repaired in three to four months. It should also be the duty of the general practitioner to examine the cervix of all women who consult him for pelvic symptoms and urge a repair operation if a laceration is found. And, finally, I would urge as a routine practice, the examination of every woman over forty years of age who has borne children and the immediate repair of all lacerations of the cervix that may be discovered."

As to cure. Can cancer be cured? Undoubtedly. How? By making an early diagnosis and applying the proper remedy. I would not state that surgery is the only remedy, but would say that it is the best and only in exceptional cases should the X-ray, radium and cataphoresis be more than supplementary.

There is a time in all cases of cancers when the disease is strictly a local condition and if removed at that stage of the disease the patient will be permanently cured. There will also come a period in all untreated cases when the disease has advanced beyond the hope of removal and cure by any known measure.

Bloodgood has shown that in cancer of the breast when no axilliary glandular involvement was present, 85 per cent. of the cases were well three years after operation. When involvement of the axillary glands had taken place, 30 per cent. were well after three years and where the glands of the neck were also involved, but 10 per cent. were well after the same period of time.

Cancer of the lip, on account of its ease of early diagnosis, can be cured in about 90 per cent. of cases.

Wertheim reports 22.5 per cent. of cures in all cases of cancer of the cervix. Other German operators report as high as 48 per cent. of cures in operable cases. In this country the cures reported in all cases of cancer of the cervix vary from 1.5 per cent. to 8 per cent. This remarkable difference in results between the two countries is readily explainable.

These figures, while showing that cancer can be cured, are not particularly

satisfying. The trouble is that even in those cases that are considered operable the diagnosis has been too long delayed to give the best results. Operative mortality cannot be held responsible for the high death rate. Cancer of the lip from an operative standpoint has practically no mortality. Rodman has shown that the operative mortality in cancer of the breast is less than 1 per cent., and hysterectomy should not have a death rate of more than 4 per cent.

With our present knowledge, what then is the solution of the problem? Surely the making of an early diagnosis and the immediate resort to treatment.

It is not the purpose of this paper to take up in detail the methods of making an early diagnosis of the various organs of the body which are subject to cancer. I only wish to add my mite to the campaign of education for the necessity of early diagnosis.

Three classes are to be educated: the public, the general practitioner and the surgeon.

While I have no apologies for the profession for their shortcomings, too much blame is frequently placed undeservedly on the shoulders of the general practitioner for his failure to bring his case to early operation. The blame frequently rests with the patient in not consulting the physician early enough and refusing to follow his advice when given.

Taussig in an article[10] entitled "Recent Experiences in the Treatment of Uterine Cancer" states: "The blame for the late recognition of uterine cancer rests mostly on the woman herself. In about 90 per cent. of the cases she did not at once consult a physician. In about one-third of the cases the carelessness or ignorance of the physician was partly or wholly responsible for the delay."

The question of the education of the public presents many difficulties. Many plans of education through the medium of the public press and popular magazines have been proposed and vigorously objected to. The principal objection being that a state of cancerphobia would be produced which would be more serious in its results than the disease itself. Personally I do not believe that this would be true in relation to cancer any more than it has been in appendicitis and tuberculosis and no one can fail to recognize the immense value in life saving in these two diseases as the result of publicity. That education of the public in reference to cancer will bear fruit and be free from evil consequences, has been amply proven in Germany, where, as the result of Winter's educational movement, the number of cases of cancer of the cervix coming to treatment has increased by 80 per cent. since the beginning of his campaign. More than that the cases are seen earlier than ever before, and no cancerphobia has developed. The family physician can wield a potent power in the education of the public by removing the fallacies for which his brethren in the past have been mainly responsible, and instilling into their minds the truth in relation to the hopes of cure and the safety of treatment. And, finally, the time has come when we should throw off the shackles, not of ethics but of tradition. We should take the public into our confidence and relieve medicine of the shroud of mysticism which has so long encompassed it. In no way can

we do it better than by speaking freely through that best of all educators, the public press.

The physician himself needs to be educated. He should realize the importance of this subject and familiarize himself with the methods of early diagnosis of the disease. Or, if the diagnosis requires special training, he should at least be ever alert to refer his cases early for an opinion. I do not believe that all the errors of diagnosis of cancer are due to ignorance on the part of the physician but I do believe and know that many are due to the worse sin of carelessness. Surely one cannot plead ignorance in telling a woman, during the cancer epoch of her life, that her menorrhagia or metorrhagia is due to the menopause and rest content with that diagnosis without ever making a vaginal examination? And yet in my experience that is precisely what has occurred in nearly all inoperable cases of cancer of the cervix. I have seen so many sad cases of mothers condemned to a terrible death, as the result, I might almost say, of criminal negligence, that I believe such a man is a menace to the community and should forever be debarred from the practice of his profession. There is no excuse for such conditions to exist; it is not ignorance nor even stupidity, it is wilful neglect. As to the uterus, so the breast and other organs. When we know that 80 per cent. of all breast tumors are malignant there is no excuse in waiting until the case is inoperable before making at least a presumptive diagnosis and advising proper treatment. Neither should a case presenting gastric symptoms be treated indefinitely for indigestion without an honest effort being made to discover the cause of the symptoms.

The great lesson which we physicians should learn is that our profession entails a great responsibility. Sacred lives are placed in our keeping and our first duty is to give the best that is in us to the conservation of life and happiness of our patients. If we fully realize this we would find time to study our cases and treat them properly.

In conclusion the surgeon himself needs to be educated in this subject of cancer. Here is a disease in which the so-called brilliant surgeon, the rapid operator, may be and often is, a menace. There is little of the theatrical brilliancy in an operation for cancer. It is the surgeon who is conscientious, patient, painstaking; who realizes his responsibilities and who has mastered the pathology of the condition who will achieve results.

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PROPHYLAXIS OF GONORRHOEA.

By THOS. W. ROSS, M.D.,
ASTORIA, ORE.

This subject is one of the most important subjects in medicine, yet it is coolly passed over in all our text-books.

The busy physician has neither the time nor the inclination to ferret out exactly how his patients get infected, but busies himself with the treatment.

The gonococcus is not a motile germ, and certainly cannot make its way from the vagina into the male urethra during coitus. Infecting a coccus free urethra with gonococci from culture produces typical gonorrhœa in from twenty-four to forty-eight hours. Infection after coitus *rarely* takes place under five days, and, in the majority of cases, between five and seven days.

How can we explain this discrepancy?

First, by the lack of prophylactic measures.

Secondly, by the incomplete prophylaxis used.

By incomplete prophylaxis, we mean the ordinary measures designated by the ordinary physician, consisting of antiseptic, astringent or alcoholic washes, medicated soaps, etc. Also the use of antiseptic and germicidal injections, which only serve to familiarize the patient with the use of the hand syringe for the resultant gonorrhœa.

Internal medication as a prophylactic measure need only be condemned.

Lack of prophylaxis results in gonorrhœa in about 95 per cent. of all cases.

During coitus the dorsum of the penis acts much the same as the examining finger, stroking out quantities of pus from the female erethra. This pus mixing with the residual pus in the vagina, and rendered more viscid by the glandular secretions during sexual excitement, is siphoned out by the piston-like action of the penis and deposited among the hairy portion of the peni-pubic junction. The scrotum, which is in immediate contact with the perineum receives the bulk of the material siphoned out.

After coitus the usual incomplete prophylactic measures are resorted to; the penis is washed with any of the numerous washes, injections are taken and internal medication resorted to. The hairy regions being neglected, the pus cells (containing the gonococci) and mucus are rubbed off onto the underwear or trousers, from there to the glans penis where they gain entrance into the urethra.

This may take a day or days, owing to the vitality of the germ, or the amount of nourishment in the pus cell.

The non-erectile condition of the penis with the consequent resting of the glans against the hairy portion of the scrotum also leaves the way clear for the gonococci to enter the urethra.

It can readily be seen that the simple asepsis of the penis alone, and all the other medication is absolutely useless unless the hairy regions around the pubes and scrotum are thoroughly cleansed. *Asepsis of the entire sexual regions will absolutely prevent gonorrhœa.*

There will always be the patient who "thought he had gotten a virgin," —"who was in a bad place where there was no water," to say nothing of the unclean, the braggart and the drunkard to keep our surgeons busy with pus tubes, and our G. U. men boring out strictures until eternity. Instead of fatherly lectures on alcohol and tobacco, lead your sons out into the wood-shed, when they reach the age of puberty, and tell them how to take care of themselves after coitus. Advice of this kind would bring more grandchildren into the world and less abdominal operations on our married daughters.

Case I.—Chester L; age 21; character, honest and truthful.

History.—Patient presented himself complaining of urethral discharge. No previous history of this symptom.

Patient had only had coitus once between the dates of November 28th and December 26th, that date was December 26th, and *used a condum.* However, urethral discharge commenced January 3d, A. M.

Microscopic Examination.—Gonococci found in discharge (Gram stain used).

Diagnosis.—Gonorrhœa.

[N. B. I treated the young lady from whom he contracted the disease and she had typical gonorrhœa.]

Case II.—Arthur E.; "condum"; gonorrhœa, 9 days.

Case III.—Boyd M.; "condum"; gonorrhœa, 8 days.

OBSTETRICS AND GYNAECOLOGY.

By E. S. McKEE, M.D.,
CINCINNATI.

SIR ARTHUR VERNON MACAN.

It is with regret that the writer records the death of this distinguished obstetrician. After qualifying himself in medicine at home, he went abroad, spending several years in study in Berlin and Vienna. He it was who introduced German ideas in gynæcology into Ireland. He was one of a small circle of youthful specialists who were known in Dublin as "The German Band." It was while he was Master of the Rotunda Hospital, in Dublin, in 1887, that the writer came under his teaching and has ever since held him in the highest regard. Early years in the Rotunda were those of the growth of antiseptic surgery. He did the first successful case of Cæsarean section known to have been done in Ireland. He instituted great reforms in the Rotunda Hospital in the nursing system. The obstetric chair was one of the innovations which he introduced into midwifery practice in Dublin. He was president of the Obstetric Section of the British Medical Association, at Dublin in 1887, at which the writer was present. President of the British Gynæcological Society, Honorary President of the Obstetrical Section of the International Medical Congress, at Berlin, in 1890. He was president of the Royal

College of Physicians of Ireland. In 1893 he had conferred upon him the honor of Knighthood. He was King's professor of midwifery, Trinity College, Dublin and Obstetrician to Sir Patrick Dunn's Hospital. He was a striking figure in the Dublin School of Obstetrics. His forcible character led to a brusqueness of manner which covered a very generous and kindly disposition. Many mourn his death as they lose a beloved friend and a distinguished teacher.

ABORTION BY PARSLEY STEM FOLLOWED BY FATAL TETANUS.

Dr. Scherb, of Algiers, reports a case in Journal de Med. et de Chirugie Pratiques, where the use of the parsley stem for producing abortion, as is a custom in Algiers as well as some few other countries, was followed by a fatal tetanus. He noted in the patient who had been seized the day before he was called, marked trismus, laryngeal spasm, dysphagia, dyspnœa and tachycardia. Scherb was puzzled till he turned his attention to the genital tract, when the patient admitted that five days previously a woman had passed a parsley stem into her uterus and succeeded in provoking an abortion at the third month. Within two days the ovum was easily expelled and without much hemorrhage. Parsley grows abundantly in Algiers on dung hills and soil the fit abode for Nicolaier and Rosenbach's earth bacillus. The volatile oil and the apiol in a piece of parsley could not set up a tetanus of themselves. The patient insisted that the stem had been carefully asepticized before it was used. The probability and possibility of this were both doubted by the reporter. Scherb employed active measures, big doses of chloral and salicylate of eserine, two bleedings, followed by intravenous saline injections and subcutaneous injections of carbolic acid and tetanus antitoxine. There had been five days of incubation and three of evolution. The latter was practically without fever, whilst opisthotonos and spasms of the muscles of the extremities were not marked and occurred at long intervals. The incubatory period, five days, was shorter than usual in visceral infection, while on the other hand the rapid evolution of the tetanic phenomena, three days, was in accordance with what has been noted in most cases of this form of infection. It seems to be the first instance of tetanus introduced in this way. The poison was, it is true, not from the parsley as such, but from the bacillus introduced into the uterus with the piece of vegetable matter, which in this case happened to be parsley.

ICHTHYOL IN GYNÆCOLOGICAL PRACTICE.

Chesner contributes a valuable article in *Quinzaine Therapeutique* on the uses of ichthyol in gynæcological practice. Latteaux, of Paris, has found that ichthyol possesses very active bactericidal properties and will destroy all forms of bacteria in a strength less than that in which it is used therapeutically. Unna has shown that ichthyol has marked effects in relieving congestion. For these reasons ichthyol has been favorably received by gynæcologists and is now used very widely. Pozzi has used it continuously since 1892, and has had excellent results. Schauta, of Strassburg, and Freund, of Prague, have used it with unvarying success in uterine infections. The high percentage of sul-

phur in ichthyol which is present in a specially combined state, gives it the active properties of nascent bodies. This is the reason of the therapeutic value of the remedy. Impurities of ichthyol are the cause of blisters and eruptions following its use. In gynæcology ichthyol is generally employed in a ten-per-cent. solution in glycerine. Tampons of cotton are saturated with this and applied to the place of inflammation. Suppositories of ichthyol and glycerine or saturated tampons inclosed in gelatin capsules are more neat and convenient. Suppositories of ichthyol are also valuable in rectal troubles, as piles, fissures and fistula. It has also proved of much value in eczema and pruritus of the vulva. Barduzzi recommends the following formula in pruritus vulvæ. Ichthyol 10.00, menthol 1.00, dermatol 5.00, petrolatum 50.00, apply two or three times daily. For eczema the following ointment is recommended: Ichthyol 10.00, lanolin 40.00, essence bergamot q. s. Ichthyol has been found useful in gynæcology in the following conditions: Congestions of all kinds, inflammatory conditions, exudations in the genital region, as in pelvic peritonitis, chronic parametritis, chronic metritis, inflammation of the ovary and Fallopian tubes, erosions of the cervix, Fallopian tubes, cystitis, the various manifestations of gonorrhœa and anal troubles.

CANCER OF THE BODY OF THE PANCREAS.

Chauffard, at a recent meeting of the Academy of Medicine of Paris, reported three cases of this relatively rare affection. The symptomatology was explained by the anatomical connections which seemed sufficiently precise to make the clinical diagnosis possible. Pain of a special character was the chief symptom. In two it started on the left side on a level with costal margin. This pain little by little, extended towards the middle line and was localized in the epigastrium, low down and above the umbilicus, often radiating towards the back, the chest, the shoulders and took on a very typical character. The paroxysms became more frequent, of longer duration and very acute, producing a corset-like constriction. The patients adopted a characteristic attitude, only finding a little relief sitting bent slightly forward with the knees bent up, thus relaxing the abdominal muscles as much as possible. No food could be retained during these crises and between the crises no special dietary seemed to have any preventative action. Intestinal fullness, a false need of going to stool, was a symptom in two cases. In the three cases no tumor could be felt, but in some the existence of a deeply situated hard tumor can be felt, in the middle line. There was no enlargement of the supraclavicular or inguinal lymphatic glands and no ascites. Vomiting was rare and jaundice appeared very late. The gall-bladder could not be felt on palpation and the liver was but slightly enlarged. The symptoms of cancer of the body of the pancreas are entirely different from those of the head. In two cases operated upon by Dr. Tuffier, the patient was given enormous relief and thought himself well. In spite of the amelioration which was extraordinary, but of short duration, the disease begins to again progress rapidly but the patients did not have any more suffering.

Editorial

COEDUCATION.

To the last half of the nineteenth century must be credited a decided advance in the estimate put on woman as a student in an equal class as men. Previous to that time the opinion of woman's inferiority was so deep rooted, that the fountains of knowledge had been sealed to her, and her attaining equal rank with man in scholastic pursuit had met with tardy recognition. But now things have changed—woman has won for herself the recognition that she is capable for higher opportunities in education. This is seen in the many female schools, seminaries and colleges that have blossomed up with equipments equal to the best of those that young men attend.

The admission of women to our colleges and universities together with men is an old question but nevertheless it is important in the field of education.

The separation of the sexes in education has nothing to do with any difference in sphere, for we agree to give women as good an education as men. But the question of allowing them to be educated together is the question to be solved. A great many people hesitate to accept coeducation because they believe that the close association of the boys and girls will cause the boys to imitate the girls and the girls the boys, so that each sex will run the risk of losing some of its individuality and charm.

The college takes the young man at the most critical period of his life and retains the entire control of him for a period long enough to form his character and give his mind the training so necessary for his future success. The first and most essential view in regard to this question is the sexual question. The constant personal contact would create immoral ideas and imaginations which would tend to the ruin of the individual. In the lower primary and secondary schools the pupil is under the direct care and supervision of his teacher and parents. Home life and the rigid discipline laid down by his father and mother are still the main factors of his life. But, however, in the higher schools with the coming of adolescence, the whole state of affairs change. The home life and discipline are now forgotten and they become only memories and the constant association with the opposite sex exposes and promotes premature emotional development. It tends to spoil the manners of the girls, making them coarse, mannish and boisterous. The real objection to coeducation would be the tendency to marriage at an earlier period than is desirable and agreeable to most parents.

It is certain that the mental influences of both sexes are quite different and it is clearly understood that these mental emotions are potent factors in the maintenance of robust health, therefore, the possible evils resulting from constant association, would overbalance the desirable robust health. The young lady at the time of adolescence should be guarded from any disturbance. Every possible provision for sound physiological common sense should undoubtedly be made in the whole structures of society for the protection of its women. The

female sex, as a rule, is unable to keep up with the male sex and should not be permitted to compete with the male sex in an identical course of education. Higher discretion should be maintained in preserving their health owing to the fact that they are more wonderfully made and that greater physiological changes and functions take place during the period of adolescence. Woman's physical nature demands a difference in treatment as regards the hours of study, the time of physical exercise and the character of such exercise; also as to the regularity and uniformity of the task assigned. She does not possess the physical process to which the mental process is analogous. A pugilist or a wrestler gains strength by hard training and work, but he must have a great deal of natural vigor to start with and what he does is to stimulate the separation of waste tissue and make his muscles as strong as possible. Women however, are not able to stand such strain on their physical or mental powers, which all training whether physical or mental involves. It is a well known fact that although women may eat and drink as much as men, take the same kind of exercise and live under the same environments, they will not be able to lift as much, walk, ride or swim as far. In other words women do not possess the same enduring and physical powers as men do and are therefore unfit to be educated with them. Very few girls can cope with the same amount of subjects as the average man without breaking down physically and becoming a nervous wreck. They cannot stand the same amount of work which their robust brothers can easily undertake. Even if they could we cannot but believe that quite a different training is required to fit the members of the different sexes for the diverse work that will necessarily fall to their lot. Woman is by her nature fitted for certain functions and man for certain other functions in the social economy. Each class of functions and the inherent right of each sex claims the right to the best that schools can give. But it does not follow that each is to bear the same burden. The natural inferences must be that women are too weak morally to withstand the temptations of the male society, the excessive freedom of manners, the sentimentality and the love making thus makes coeducation undesirable and impracticable. Since the instinctive and hereditary differences of the two sexes do not develop until the period of adolescence, it is of no harm to allow the two sexes to have equal opportunities and be educated together before this period.

Materia Medica and Therapeutics

ADHESIVE PLASTER IN THE TREATMENT OF SWELLING FEET.

Dr. Stabsarzt Blecher discourses on the treatment of swelling feet with adhesive strips. He employs eight strips one inch wide and two feet in length. The author places the foot in extreme dorsal flexion and then alternately fastens, first one strip on the inner side of the foot, drawing it across the sole of the foot, then across the dorsal surface of the foot and upon the outer side of the leg.

This is continued till all eight strips are applied. The strips should first be warmed and applied with considerable force. A flannel bandage is placed over the strips up to the knee. The adhesive plaster may be left in place for three weeks. Patient is at once able to walk and is saved a long, tedious treatment in bed. (Deutsche Militarztliche Zeitschrift.)

ACUTE MENTAL CASES, TEMPORARY TREATMENT OF.

Drs. Damaye and Mezie generalize the therapeutic treatment for acute mental cases. Instead of placing such patients in formal commitment, the writers advise some place, or part of a place to which they may be taken, voluntarily, and if recovery permits, no stigma will follow the patient as he goes through life. The treatment is not entirely psychiatric but also therapeutic. For mania, chloral; for nervous and excitable, bromide; for fears, morphine (never opium) in variable dosage. Add to this laxatives, organotherapy in its modern extent. Lavage of stomach and intestines, so difficult in the home, in the hospital becomes easy and effectual. Hydrotherapy must be remembered. Methods employed to combat systemic infection are valuable in mental cases. Treatment must be prompt and vigorous if it may succeed. (The Medical Times, March, 1909.)

AN EARLY SYMPTOM OF PHTHISIS—ENLARGEMENT OF THE HEART AND LIVER.

Dr. S. von Unterburger, of St. Petersburg, has found that: (1) The phthisical process is in the lungs, the danger in the heart. (2) A small heart is not a symptom predisposing to consumption. (3) The size of the heart must be determined by percussion according to the Röntgen pictures; no other method is reliable. (4) The relative dullness can be determined only by light percussion. (5) The rapid enlargement of the right heart in phthisis is related to a congenital anlage and is embryologically closely connected with congenital predisposition to tuberculosis in general. (6) Exciting causes of the enlargement of the right heart are: obstruction in the lesser circulation, the toxines of tubercle bacilli and other microbes, and the toxins of biologic-chemical products of metabolism. (7) The liver is more sensitive than any other organ in its reaction to enlargement and weakness of the heart. (8) A clear picture of enlargement of the liver, and hence weakness of the heart, is obtained not by palpation, but by percussion from below upward toward the border of the liver. In most cases a congested liver is also quite sensitive to light palpation. (9) Enlargement of the heart and liver forms a very important link in the chain of early clinical symptoms of pulmonary tuberculosis. (The Medical Times, March, 1909.)

APPENDICITIS, TREATMENT OF, BY A NEW METHOD.

Dr. Jaeger advocates this treatment only in those who have the disease of a mild or moderately severe type and in those cases who absolutely refuse an operation. He does not intend that this method should substitute surgical interference. His method is based on Bier's hyperæmia and consists of dry cupping the entire lower right quadrant once or twice daily of one-half hour's duration and repeating the procedure to the free surfaces that have escaped the first cupping. No medication is otherwise resorted to. The patient is to fast two or three days, after which time a liquid diet is permissible and the cupping resorted to but once a day. The author

reports six cases of appendicitis treated in this manner, all recovering. In five cases the pain ceased entirely after the second application, and in one after the fourth cupping. In no case was there a recurrence within two and one-half months to one and one-quarter years. In a severe case, continuous rectal injections of normal saline solution were also given. Jaeger also advocates dry cupping of 20 to 25 minutes' duration with 6 to 20 cups every three hours in those cases while the question of operation is being decided. (Muenchener Medical Wochenschrift, No. 6, 1908).

ATROPIN IN ASTHMA.

Dr. P. V. Terray protests against the general neglect of atropin in treatment of bronchial asthma. As the affection is a neurosis, atropin is theoretically indicated, and he has witnessed excellent results from it in certain cases, although it is by no means a panacea in all cases. In one case he has succeeded not only in arresting the attacks with it, but the patient was improved so that there was no recurrence of the asthma for ten months, although the man had been constantly affected with it for twenty years. Atropin can be advantageously used as a substitute for or to alternate with morphin. He describes the cases of seven patients with severe asthma treated with atropin, the results quite encouraging. He prescribes the atropin in pills containing each 0.0005 Gm. ($\frac{1}{120}$ gr.) at first one a day, then after two or three days gradually increasing to a total of from four to six pills a day, and then gradually reducing the dosage to one pill a day. The atropin not only arrests an attack but it seems to prevent recurrence. He never saw any ill effects from this dosage. (Medizinische klinik., Berlin, January 17, 1909.)

ATROPIN TREATMENT OF ULCUS VENTRICULI.

Dr. D. von Tabora obtained good results in cases of ulcus ventriculi complicated with hypersecretion and muscular insufficiency. He administered atropin internally by injecting one milligram morning and evening hypodermically, sometimes three milligrams daily, for four to ten weeks. He starts his treatment with fasting for a few days and follows with the diet of Von Leube, while the patient keeps perfect rest. The valuable properties of the atropin are attributed to its antispasmodic and narcotic action. In a short time the hypersecretion ceases, the acidity diminishes, the insufficiency and spasmodic pylorous contractions disappear. His patients stood the treatment well, and suffered only from a dry throat and accommodation paralysis. The treatment never failed entirely. (Münch. Med. Wochensch., 1908, No. 38.)

CARBUNCLE, TREATMENT OF.

Dr. Max Grasmann reports the excellent results obtained by his method of treating carbuncles. He states that a carbuncle is one of the most difficult problems which the general practitioner has to cope with. The best and most certain method is excision. The operation must be planned that all the dangerous area is removed, that the general health does not suffer from the interference, that not too much healthy tissue be sacrificed, and that while the process of healing is rapid, the scar resulting becomes a smooth one. He makes a deep crucial incision over the carbuncle. The skin flaps thus made are dissected from the muscular fascia and packed underneath with gauze. Hot boro-salicylic acid solution applied on gauze is used for stopping bleeding and for plugging.

The surrounding skin can be protected from burning by smearing with fat. The necrotic tissue is then removed, partly with scissors and partly with forceps. A sharp spoon should not be used. A hot boro-salicylic plug is applied and a large wet dressing covers the whole wound after all the inflamed and necrotic tissue has been gotten rid of. Within a week the greater part of the necrotic tissue is cast off and healthy granulations appear in the wound. The skin flaps are then brought into position by a few sutures, and the wound is rendered as small as possible. The only points in the treatment upon which he lays emphasis are free and early incision from healthy tissue to healthy tissue across the carbuncle, free exposure of the necrotic tissue after the flaps have been protected, and plugging with hot boro-salicylic acid solutions. He has obtained excellent results in his cases with this method. (Deut. Med. Woch., October 15, 1908.)

CEREBELLAR TUMORS, TREATMENT OF.

Dr. Siemerling by personal observation of 7 cases of cerebellar tumor, four of which concerned children, discusses the diagnostic significance of the various symptoms. Especial importance is attached to the absence of the corneal reflexes, as indicative of tumors of the posterior cranial fossa. Lumbar puncture enters chiefly in the treatment of these cases. After having been abandoned up to a certain degree in the treatment of brain tumor, this method is at present winning new adherents. The pressure should be relieved, according to the author, by lumbar puncture, or puncture of the lateral ventricles, under the necessary precautions. Ventricular puncture is indicated more particularly in those cases where the efficiency of lumbar puncture fails, and may, under certain conditions, serve to render the patient fit for operative interference. When the diagnosis is positive and the side occupied by the tumor has been determined, which is very important, an operation is advisable to guard against a threatened loss of vision. In these cases palliative trephining, at least, should not be omitted, as recommended by the author. (Berliner klin., Woch., No. 14, 1908.)

CERIUM OXALATE FOR RELIEF OF VOMITING.

Drs. G. Baehr and H. Wessler, New York, discuss and give in detail the real worth and use of cerium oxalate. They obtained the therapeutic value by carrying out experiments upon animals. (a) To determine the toxicity of cerium oxalate and the oxalates of lanthanum, neodymium, praseodymium and thorium; (b) to determine the effect of commercial cerium oxalate on vomiting induced with apomorphin hydrochlorid and ipecac; (c) to determine the effects of cerium nitrate on vomiting induced with apomorphin hydrochlorid; (d) to determine the general effects of cerium nitrate on the body and also of the paths of excretion of cerium from the organism. They arrived at the following conclusions:

1. Commercial cerium oxalate is nontoxic.

2. Cerium oxalate has no inhibitory effect whatever on vomiting of central origin.

3. Cerium oxalate may inhibit vomiting due to local irritation of gastric mucosa, but only if given in large doses for some time, so as to coat the stomach wall pretty generally.

4. Cerium oxalate is not absorbed from the gastro-intestinal tract.

These four propositions show the close

analogy between cerium oxalate and bismuth subnitrate. Both are not absorbed by the gastro-intestinal tract. Cerium oxalate has been used, in great part, against the reflex vomiting of early pregnancy. At the present time it is being used for relieving the irritability of the stomach in alcoholic gastritis, others for allaying the gastric disturbances that occasionally manifest themselves in the course of infectious diseases. It is also of value in gastric ulcer, in which the vomiting is due to local irritation of the mucous membrane. Cerium oxalate accomplishes its purposes by mechanically coating the wall of the stomach. It ought to be administered in doses comparable to those in which bismuth subnitrate is given. (Archives of Internal Medicine, Chicago, January, 1909.)

CONGEALED CARBON DIOXIDE IN THE TREATMENT OF ANGIOMA.

Dr. Sauerbruch reports very favorably of the results obtained from the treatment of cutaneous angioma by the direct application of congealed carbon dioxide. This method which was brought under the author's notice by A. I. and E. Oxner, of Chicago, will, it is stated, be found a simple and efficient means of dealing with both superficial nævi and also with small cancerous growths of the face. The following description is given of the technic of the treatment: From a cylinder of carbon dioxide, such as is used in making frozen microsections, a fairly strong jet of the gas is played on to a piece of cotton-wool; the rapid evaporation of the liquid dioxide causes intense chilling, which condenses a portion of the gas into a snowy powder with a temperature of —70° C. Some of this solidified gas is applied to the surface of the nævus, where it remains from ten to thirty seconds. The intense cold causes extreme contraction of the blood-vessels and anemia of the growth. This is repeated once or twice at the same sitting, the white flakes being applied to different parts of the vascular surface. No dressing is placed over the seat of this operation. The treatment is renewed at intervals of from eight to ten days until the tumor has completely disappeared. In its cosmetic results this method, it is stated, compares favorably with those that are usually practiced, and, moreover, is free from pain. (Zentralbl. f. Chir., No. 1, 1909.)

EFFECT OF OXYGEN UPON WOUNDS AND INFECTIONS.

Dr. Burkhardt in a series of experiments upon rabbits and dogs tested the effect of chemically pure oxygen upon wounds and infections. In his studies of the inhibitory influence exerted by the oxygen upon the growth, or the toxicity, of pathogenic bacteria the author examined in the first place the ordinary pus-producers, notably the staphylococcus pyrogenes aureus. His findings may be summarized as follows:

1. Contact with pure oxygen gives rise in wounds to a well-marked vascular injection, and there appears a state of arterial hyperæmia. The wounds remain more moist and the formation of granulation tissue is stimulated.

2. Cultures of facultative ærobic bacteria, or artificial nutrient media, are considerably retarded in their development when grown in an atmosphere of pure concentrated oxygen, but they are not destroyed.

3. In the animal body even a supply of oxygen in great abundance applied to the infectious focus does not seem to inhibit the growth of the bacteria to a notable extent; neither is this the case in general infections when the entire body of

the laboratory animal is bathed in oxygen. The animal experiments indicate, however, that there occurs a certain slight diminution in the virulence of the bacterial poisons.

4. In the peritoneum the contact with pure oxygen produces a state of mild inflammatory irritation. A rather considerable hyperleukocytosis develops, especially in the simultaneous presence of fluids in the abdominal cavity; absorption in the abdominal cavity is retarded.

5. Ozone seems to be better adapted than ordinary oxygen for the control of infections, especially in body cavities, which are easily filled with the gas. It certainly appears promising to continue the experiments with ozone in septic infections. (Medical Review of Reviews, February 25, 1909.)

ERYSIPELAS, VACCINE TREATMENT OF.

The results of the use of a vaccine prepared from Fehleisen's *Streptococcus erysipelatis* are reported and discussed by Drs. G. W. Ross and W. J. Johnson, Toronto. They employed the vaccine in fifty cases, and from this experience they firmly believe that when properly administered it exercises a specific and controlling influence on the course of the disease—preventing its spread, lessening its severity, and hastening recovery. In the first sixteen cases they followed the method of opsonic therapy, but the results were so satisfactory that in the remainder they felt justified in omitting the usual opsonic blood examinations and had equal success in the remaining cases, many of which were severe. They admit, however, that in certain severe cases the usual thorough blood examination may be required. It is unnecessary, they say, to prepare a vaccine for each case, but it is advisable to have a composite stock of vaccine from several different strains and as many different cases and it is probable they think that the more virulent the case of erysipelas the more valuable will its streptococcus be as a vaccine. Their method has been in almost every case to inoculate with 10,000,000 of dead streptococci on the first visit if the case is a severe one and with 20,000,000 if the case is less severe. On the second, in a severe case, the patient gets 10,000,000 if there be signs of improvement. The most important of these signs is a certain clearing of the intellect and the next are the lessened tenderness and pain. The temperature is not so valuable, though a fall of two or three degrees on the morning following the injection is a valuable indication for a second inoculation. If, however, no evidence of improvement follows in the severe case and it is impossible to determine the opsonic power of the blood, then 5,000,000 only should be given on the second day. In less severe cases improvement is almost always manifest on the day after inoculation and the patient should receive but half the first dose; that is, 10,000,000. They then inoculate with 5,000,000, 10,000,000, or 20,000,000 of streptococci on every second day until a week after temperature has reached normal and the erythema has subsided. They are guided as to the dose in each case (when opsonic investigations are impossible or unnecessary) by its severity and the unsatisfactory results as shown by clinical observation. The rule is "The more severe the case and the less satisfactory the clinical response the smaller the dose." The site of inoculation has always been chosen away from the involved area. They have been so successful they have not felt it necessary to attempt inoculation near the site of infection. Nineteen cases observed by them in 1907 which were treated in the ordinary way are tabulated and compared

with an equal number treated in 1908 by inoculation and the advantages of the later method in the way of shortening the duration of the disease, avoidance of complication, etc., are very manifest. (Journal American Medical Association, March 6, 1909.)

FIBROLYSIN IN PLEURAL ADHESIONS.

Dr. Schnülgen discusses the deposition of fibrin that takes place after the more or less complete absorption of a pleural effusion. This leads to adhesions between the two layers of pleura, and thus binds down the lung to the chest wall or the diaphragm. The author points out that when this affection is recurrent, as is the case in tuberculosis, an induration of over ½ inch in thickness may be formed. The results of such adhesions and induration on the pulmonary circulation need no special description. The clinical symptoms of such adhesions are diminished breath sounds, loss of vocal fremitus, and dullness on percussion. Pain is complained of. Subjective symptoms may, however, be very slight. The treatment usually adopted in such cases is painting the chest with iodine, applying iod. vasogen, and lung gymnastics, but the results of these forms of treatment are rarely apparent. When gymnastics are combined with fixation of the healthy lung, by means of pneumatic apparatus, better effects are obtained. Since fibrolysin (thiosinamin and sodium salicylate) has, within recent times, been highly recommended for a large variety of internal and external scar formations, the author determined to try it in pleural adhesions. He used Merck's preparation, which contains 2.3 c.c. of fibrolysin in each capsule, and injected this dose either locally or in the gluteal muscles. The injections were repeated once or twice every week according to the severity of the case. In the majority of the cases the injections were painless, and the only undesired effects were occasional slight rises in the temperature, slight feelings of tiredness, and headache. The objective and subjective symptoms diminished markedly, and in some cases with extraordinary clearness. In reviewing his cases he states that fibrolysin applied immediately after the fusion is completely absorbed, and signs of beginning pleural adhesions can be made out, is often followed by good results, and should therefore always be tried. (British Medical Journal, February 27, 1909.)

GENITAL TUBERCULOSIS, TREATMENT OF.

Dr. F. J. McCann notes a growing tendency toward conservative surgery in the treatment of genital tuberculosis. This is destined to increase with advancing knowledge concerning the curability of many varieties of tuberculous disease. If there is no evidence of tubercle in the ovaries they certainly should not be removed, and if the infection is only slight there is still no reason why they should be sacrificed, for tuberculous foci can, if necessary, be excised. The formation of a pyosalpinx is a definite indication for surgical treatment, which is best effected by the abdominal route. Aspiration of the pus sacs followed by the employment of an appropriate vaccine would seem to be the ideal treatment. When the uterus is only slightly involved—*e.g.,* miliary tubercles being evident on its peritoneal surface—it should not be removed, as it is illogical and unscientific to remove this organ while leaving undisturbed a widespread infection of the intestine, omentum and mesentery. (American Journal of Obstetrics and Diseases of Women and Children, February, 1909.)

HYDROGEN PEROXIDE IN MEDICINE.

Dr. E. Friedlander highly recommends "perhydrol" formerly hydrogen peroxide in dilution 1 : 9 in fistulæ and abscesses of the antrum of Highmore, and in wounds and ulcers of the mouth in general. Some authors use it in the place of absolute alcohol to irrigate carious cavities, others in pyorrhea alveolaris. Before operating on the mouth or teeth, there is nothing better to sterilize the parts than diluted perhydrol. Good results are also obtained in stomatitis, especially if syphilitic, aphthous or ulcerous. Perhydrol should replace borax, potassium permanganate and potassium chlorate, as it is far superior to all these drugs and, in addition, is harmless. A one-per-cent. solution of perhydrol will usually kill all germs in from five to twenty minutes. The free use of perhydrol as mouth wash will often prevent disease of the upper air passages, and sprays have recently been recommended as the efficient means of prophylaxis in measles. The addition of perhydrol to mouth washes renders them more antiseptic. Finally, the drug does good service in hyperesthetic dentin, before drilling or scraping. This preparation of perhydrol is absolutely pure and is concentrated 30 per cent. (Aerzt. Vierteljahrs-Rundsch., 1908, No. 3.)

INFANTILE MENINGITIS, TREATMENT OF.

Dr. Roque Macouzet classifies meningitis as arising from (1) acute general infections, such as influenza, pneumonia, scarletina or gastro-intestinal conditions; (2) tuberculosis; (3) suppurations of the nose, throat or ear; (4) trauma; (5) marasmus and inanition. The exciting cause, micro-organismal as it may be, coming upon selected soil produces the disease. A specific form due to the meningococcus intracellularis of Weichselbaum, may be diagnosed by its recovery through lumbar puncture. Kernig's sign is esteemed highly in Mexico and is, by its early recognition more valuable. In the treatment one must determine any cause of irritation, digestive or respiratory and treat each secundum artem. Lumbar puncture, which in babies is done between the third and fourth vertebræ, has not proven of more than diagnostic value, except when the tension of the cephalorachidian fluid indicates relief. Castor oil is administered with excellent results in Mexican practice. (The Medical Times, March, 1909.)

INSOMNIA IN HEART DISEASE, TREATMENT OF.

Dr. F. J. Wethered states that sleeplessness is often one of the most prominent causes of distress in chronic cardiac disease. Of all drugs he has found chloralamide the most satisfactory. It may be given at first in doses of 20 to 30 grains, suspended in mucilage or dissolved in rectified spirits. The dose may be increased until 60 to 70 grains are given nightly. The use of the drug should, however, be suspended at intervals, and, of course, if possible, the dose should be generally lowered. The author has also found veronal (gr. 5) also useful in cardiac cases. Sulphonal, triphonal and tetronal have not yielded uniform results in the cases in which he has prescribed for them. Sleep is essential in cardiac cases and occasionally resort must be had to opium or morphia, although symptoms giving rise to anxiety are sometimes manifested, particularly if there are pulmonary complications. Apprehensiveness, irritability, restlessness are prominent symptoms of failing heart. The addition of bromide of sodium of hydrobromic acid to the treatment sug-

gested above will often have a calming effect. (Folia Therapeutics.)

MOVABLE KIDNEY, TREATMENT OF.

Dr. A. B. Bevan points out that in 30 per cent. or more of women who come to us for a general physical examination, the right kidney is so movable that the entire organ can be palpated. This condition is so common and so seldom gives rise to symptoms that it cannot be regarded as pathological. In spite of the fact, however, many of these cases are improperly subjected to an operation to fix the kidney and cure the patient of a great train of vague symptoms which have been attributed to these slightly movable kidneys. Experience has shown, however, that these symptoms persist after these operations, proving that they have nothing to do with the condition. Again, operations have been too often done to fix one or both kidneys in cases where the movability of the kidneys was but one of the evidences of a general visceroptosis. Here kidney fixation does more harm than good. The operation of nephropexy, or nephrorrhaphy, is an operation of distinct value in a limited number of cases. These are cases of extreme mobility with definite symptoms, such as Dietl's crises, due to temporary obstruction of the ureter, or distinct pain and distress which can be clearly traced to the misplacement of the organ. The operation of choice is the partial decapsulation and stitching of the capsule flaps to the edges of the wound, so that they become incorporated in the posterior linear scar as in Tuffier's operation. In well-handled surgical clinics to-day the operation for kidney fixation is seldom done, and then only in well-selected cases. (Ind. Med. Jour., January, 1909.)

ORTHOSTATIC ALBUMINURIA.

Dr. Jehle describes a new etiologic factor which explains the clinical appearance of this condition. He shows as a result of many experiments, that albuminuria is constantly absent when the spines of such patients are kept perfectly straight or have only a slight kyphotic curve. When, however, the spine is changed into a position of slight lordosis, albumin will immediately appear in the urine. He claims that the cause of the albuminuria lies not in the "orthostatic" position of the body, but is the result of any position of the body which produces a lordosis. The albuminuria, therefore, is not "orthostatic" but "lordotic." The author had several children with this condition in whom albumin never appeared when the spine was held with a plaster cast so that no lordosis of the dorsal vertebræ was possible, but when the cast was removed and the lordotic position resumed the albumin would reappear. He argues that lordosis is the causative factor of the albuminuria and that there are no pathological changes in the kidney. Albuminuria was produced in one case in five minutes by direct pressure on the inferior vena cava above the entrance of the renal veins. Artificial lordosis caused the appearance of albumin in two-thirds of the normal children which assumed artificial lordosis. He claims that the albuminuria is the result of the pressure of the spine, when in a lordotic position, producing a congestion of the renal veins.

His conclusions are as follows:

Orthostatic albuminuria is the result of an abnormal position of the body which is the result of lordosis of the dorsal vertebræ. The cause of lordosis is a laxness of the ligaments of the vertebræ and a weakness of the abdominal muscles which occurs during the period of most

rapid growth. The albuminuria persists as long as an abnormal position of the body exists. This disappears generally when the rapid period of growth is over.

Orthostatic albuminuria in adults is due to the same cause. (Jahrbuch für Kinderheilkunde, November, 1908.)

PARALYSIS OF THE SHOULDER, MECHANICAL TREATMENT.

Dr. David Silver says the disability of paralysis of the shoulder is the result of direct sinking of the head away from the socket, insecurity of the head, and contraction of unaffected muscles. The damaged nerve cells may recover sufficiently to functionate, but in the meantime the muscles be incapacitated by overstretching and atrophy from disease, is well known. If these evils have not been avoided by timely measures, it is still possible at a later stage to do some good by maintaining the paralyzed muscles in a position of maximum relaxation, and thus permitting retraction to take place. In the application of this principle of treatment to the shoulder the author makes use of a modification of Monk's wire splint, putting up the arm with hand supinated, elbow flexed and palm resting upon the top of the head. Three cases are reported in which the method was followed by good results. Since the method is a conservative one, its use is recommended in all cases not known to be completely paralyzed. While in some cases the paralysis is so extensive that the remaining power will be insufficient even when developed to the highest degree of efficiency, to maintain contact between the head of the humerus and the glenoid, in others it may be sufficient to maintain contact and no more, yet there are still others with a greater degree of recovery of the nerve lesion, in which a varying amount of active abduction will be secured. The use of the method is also recommended as a preliminary measure to muscle grafting. (American Journal of Orthopedic Surgery, November, 1908.)

PERNICIOUS ANÆMIA, TREATMENT OF.

Dr. Byron Bramwell reports a number of cases of pernicious anæmia. He gives full notes on one of these cases with no oral sepsis whatever. There was no glossitis and no dental caries. The writer claims that he has found no oral sepsis in any of his cases, and does not believe this has the influence in the production of the disease which some authorities have suggested. He believes that the glossitis from which many patients who are affected with pernicious anæmia suffer as a consequence rather than a cause; due presumably, to the same toxin, whatever it may be, which is the cause of the anæmia. In treating these cases a certain degree of improvement took place under arsenic, arrest of the improvement occurred, and in which the administration of iron was attended with very marked and rapid alteration for the better. It has long been recognized that in typical cases of pernicious anæmia, in which the color index is above the normal amount of hemoglobin, the administration of iron is not usually attended with benefit, and is, in many cases, apparently injurious. (British Medical Journal, January 22, 1909.)

RHEUMATISM, TREATMENT OF.

Dr. N. S. Davis says that there is still clinical evidence that the alkaline treatment, though it can no longer be regarded as specific, has a beneficial action in preventing cardiac complications. The nearest to a specific in rheumatism are the salicylates, especially the salicylate of sodium, but the known physiological

effects of these remedies, analgesic and antipyretic action in this disorder. They are not equally effective in other arthritic affections, and in acute articular rheumatism they do not lessen the liability to cardiac complications, another fact that is not readily explainable. The most reliable of the salicylates in the author's opinion is the salicylate of sodium and the stomach, in his experience, has tolerated best that form of salicylate of sodium which is made from oil of wintergreen. All the salicylates are most agreeably administered in capsules. Half a gram of salicylate of sodium can be given in this way, and two capsules will make an average dose. A sufficient quantity of water should be taken with the capsules to ensure the prompt solution and dilution in the stomach. A charged solution of bicarbonate of sodium or effervescing sodium and potassium citrate may be drunk instead of water, thus combining the salicylate and alkaline treatments. Other drugs may be substituted for the salicylates in rheumatism, but they have their disadvantages. Antipyrin may be effective, but it increases the anæmia, and the convalescence is prolonged. Other coal-tar preparations are open to similar objections, and if given in sufficient doses may be dangerous. Consequently, they should be adapted for very mild cases of short duration. (Journal of the American Medical Association.)

SABROMIN, A NEW BROMIDE PREPARATION.

Dr. V. Mering has investigated the action of sabromin, the dibrombehenate of calcium, so called from its analogous composition to that of sajodin, the monoiodbehenate of calcium. The formula of sabromin is $(C_{22}H_{41}O_2Br_2)_2Ca$, and it contains 29 to 30 per cent. of bromide. It is a colorless, odorless, and, in contrast to the alkaline bromides, tasteless powder, well borne by the stomach, where it is converted into dibrombehenic acid, a substance which has no action upon the stomach, and only becomes absorbed when it has passed into the intestine. The author finds the action of sabromin to be less prompt, but more lasting, than that of the alkaline bromides. He considers the drug especially suitable for hysteria, neurasthenia, nervous excitation, palpitation, sense of anxiety and nervous insomnia. V. Mering usually prescribes 1 gram two or three times daily, but he has given as much as 6 grams daily over a long period. Potassium bromide contains 67 per cent. of bromide, while sabromin only contains 30 per cent., and since the therapeutic effect of the latter equals that of the former, while the dose is about the same, it follows that a smaller quantity of bromide is required when the sabromin is administered. This may partly account for the fact that signs of bromism have never been observed from the use of sabromin, even in animals to whom very large doses have been experimentally administered. (Mediz. klinik., September 20, 1908.)

SALINE INJECTIONS IN THE TREATMENT OF SCIATICA.

Dr. J. Flesch reports eight cases of sciatica in which he applied Lange's method of local injection of salt solution under pressure. Lange himself has reported 60 per cent. of cures, and Flesch also found that the affection was refractory in some of his cases, although the effects were ideal in others. According to his experience, the loss of the Achilles tendon reflex on the affected side is a sign that the injections will prove useful. Without the loss of this reflex, none of

the other signs, tender points or Lasègue sign is decisive. The presence of the knee-jerk excludes tabetic sciatica. Excellent results can be confidently anticipated in suitable cases. (Medizinische klinik., Berlin, January 3, 1909.)

WHOOPING-COUGH, TREATMENT OF.

Dr. Czerny remarks that the nervous element in whooping-cough has been too long disregarded and the treatment should be directed principally against this. A change from drugs to hydrotherapy, inhalations or irrigation of the nose often proves effectual. The treatment need not be directed to the organs specially involved in the pertussis process. The isolation of a child with the whooping-cough is the more efficient, the greater the change from its ordinary surroundings. It should not be allowed to see or hear other children with a cough. He believes that the child can be safely isolated by transferring it to a ward where there are no other children with whooping-cough. His experience has demonstrated, he says, that the disease is never transmitted from a child kept in bed to the neighboring beds. It requires more skill on the part of the physician to treat whooping-cough with suggestion, instead of drugs, but the results will be much more satisfactory except in infants unable to be influenced by the physician's words. Only exceptionally will threatening conditions require a sedative; then comparatively large doses must be given. (Journal of the American Medical Association, January 23, 1909.)

WOOD CURE FOR CHRONIC CONSTIPATION.

Dr. Bluemland Ulrich (Klin. Therap. Woch.) recommends very highly a wheat bread in which ground wood, commonly known as excelsior, has been added, in the proportion of fifty grammes to seven hundred and fifty grammes of dough. Birch is the best wood for this purpose. The bread will not differ in appearance and taste from ordinary bread. The mechanical irritation from the cellulose and the chemical stimulus of the gases, formed by the wood in the intestines, did much to cure the constipation. Excellent results were reported in eighty cases. Constipation can be cured by removing the cause, and the chief causes of chronic constipation are lack of exercise, diet poor in residue, and habitual suppression, resulting eventually in a motor and nervous insufficiency of the intestines. (Med. Fortnightly, January 11, 1909).

ZINC PERMANGANATE.

Drs. W. A. Puckner and W. S. Hilpert have reported the results of a recent investigation of the tablets and various brands of zinc permanganate. After mentioning the various tests employed, they claim that the purity of the permanganate now on the market varies from 72.76 to 97.05 per cent., a difference of 20.29 per cent. They remark that it is commendable that since 1881 (when Biehl found as low as seven per cent. of the claimed content in some brands of the solution and only 62 per cent. of the soluble salt in the crystalline products) manufacturers have so improved their methods as to bring it to the comparative uniformity of the present-day product. The authors offer a description of a proposed standard of purity of the drug, of not less than 90 per cent., almost completely soluble in water, its appearance, tests of purity, etc., and with a dosage of 1 part to 4,000 (1 grain in 8 fluidounces), 1.3 Gm. zinc

permanganate. It resembles the potassium salt in its oxidizing properties, but is more astringent, and its chief use is as an injection or urethral douche in urethritis. (Journal of the American Medical Association, February 6, 1909.)

Book Reviews

TRANSACTIONS OF THE TENTH ANNUAL MEETING OF THE AMERICAN PROCTOLOGIC SOCIETY, held at Chicago, Ill., June 1 and 2, 1908.

The contents of this volume show articles of considerable interest to the progressive physician. The articles are well and exceptionally prepared, and therefore furnish a very useful work for the physician. The papers cover quite thoroughly all their subjects from a surgical and anatomical standpoint.

Among some of the interesting and instructive articles are: "Amœbiasis;" "Dysentery;" "Surgery of Specific Diseases of the Rectum;" "The Treatment of Rectal Prolapse by a New and Simple Procedure;" "The Choice of an Anesthetic in Rectal Surgery," etc.

A very interesting and illustrated paper is that by Adler on "Rectal Diseases:" A report of three cases—Condyloma, Lipoma and Foreign Body. The treatment outlined is exceptionally good.

TRANSACTIONS OF THE MEDICAL SOCIETY OF LONDON, VOLUME 31. Edited by Frederick J. Poynton, M.D., F.R.C.P., and Thomas H. Kellock, M.A., F.R.C.S. London: Printed for the Society by Harrison & Sons, St. Martin's Lane, Printers in Ordinary to His Majesty, 1908.

The articles in this volume are each written by a competent observer, and each one deals with an interesting and important phase of medicine.

Among the important articles and discussions are: "On the Use of Chemicals in Aseptic Surgery;" "Nervous Phenomena in Pneumonia." The Lettsomian lectures: "On Tuberculosis of the Kidney and Malignant Disease of the Cæcum;" "The Pneumococcus Infections;" "Malta Fever."

All the material in this volume comprises the Transactions of the Society during its one hundred and thirty-fifth session, from October 14, 1907, to May 18, 1908.

The papers cover their subjects in a plain and entertaining manner, and are illustrated by cuts, diagrams and colored plates.

The volume concludes with a large chapter called "Clinical Evenings," in which the histories, symptoms and treatment of many cases are presented.

PARCIMONY IN NUTRITION. By Sir James Crichton-Browne, M.D., LL.D., F.R.S., Lord Chancellor's Visitor in Lunacy, London. London and New York: Funk & Wagnalls Company, 1909.

The author in this small volume formulates and presents in an attractive manner some good and common sense ideas as to what and how much the average human being should eat. The book consists of six chapters:

I. The Up-Keep of the Body.
II. Proteid Foods.
III. Prison Experiences.
IV. Public Health.
V. The Study of Animal Function.
VI. The Voice Nature.

The theories concerning the intake of food of Mr. Horace Fletcher and Professor Chittenden, of Yale, are very keenly and cleverly attacked. The author states that the science of dietetics is not based on physiological data, nor on laboratory experiments, but it is based upon common observation, hereditary customs and habits of mankind. He also states that all the successful races have consumed proteid far in excess of the Chittenden standard, and far in excess of what was required for tissue repair.

In conclusion the author says: "We should not aim at a parcimony in nutrition, but scatter plenty o'er a smiling land."

This is not only a valuable little book, but it is also written in the most interesting and entertaining manner.

PRIMARY STUDIES FOR NURSES: A Text-Book for First-Year Pupil Nurses. By Charlotte A. Aikens, formerly Superintendent of Columbia Hospital, Pittsburg, and of the Iowa Methodist Hospital, Des Moines. 12mo of 435 Pages, Illustrated. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $1.75 net.

The writer states in the preface that the purpose of this book is "designed to assist in securing graded instruction in training schools for nurses; to promote uniformity in the teaching of the subjects allied to nursing; to eliminate non-essential instruction of a medical character from the nursing course, and to save time and labor for both pupils and teacher."

The book certainly fulfils this purpose, and is admirably fitted for the needs of the nurse. The author has presented plainly and concisely the essentials of anatomy, physiology, hygiene, bacteriology, therapeutics, materia medica, dietetics and invalid cookery in the most useful and available form. In the chapter on "Therapeutics and Materia Medica" very important information concerning the various methods of administering medicines and the different classes of drugs, together with their antidotes, are given. Another feature of the book is the chapter on "Dietetics and Invalid Cookery."

Everything possible has been incorporated in this volume of 428 pages to make it a mint of information and of the utmost value to the nurse.

THE CLIMBER. By E. F. Benson, author of "Sheaves," "The Angel of Pain," "The Image in the Sand," etc. With Frontispiece. New York: Doubleday, Page & Company, 1909.

In this work the author has taken for his central character Lucia Grimson, a very ambitious person, who is striving for social leadership. At last she reaches her goal, the height of her ambition, but finally she pays dearly for it. It is a good tale, full of action and incident, with a steady progress of the main theme and the constant growth of the character. The light and shade are cleverly put in, and the author succeeds in portraying to the reader life's contrasts. We recommend this book unhesitatingly as a fine piece of literary workmanship, as well as an entertaining novel.

SAUNDERS' POCKET MEDICAL FORMULARY. New (Ninth) Edition, Adapted to the 1905 Pharmacopœia. By William M. Powell, M.D., author of "Essentials of Diseases of Children." Containing 1831 formulas from the best-known authorities. With an Appendix containing Posologic Tables, Formulas and Doses for Hypodermic Medication, Poisons and Their Antidotes, Diameters of the Female Pelvis and Fetal Head, Obstetric Table, Diet-lists, Materials and Drugs used in Antiseptic Surgery, Treatment of Asphyxia from Drowning, Surgical Remembrancer, Tables of Incompatibles, Eruptive Fevers, etc., etc. Philadelphia and London: W. B. Saunders Company, 1909. In Flexible Morocco, with Side Index, Wallet and Flap, $1.75 net.

The author has certainly brought this edition up to the level of our latest knowledge by inserting in it formulæ from the foremost authorities. Many of the prescriptions contain the more important remedies and newly discovered drugs. The appendix is a distinguishing feature of this small book, and its contents will prove of the greatest value to the physician. Scattered throughout the book are blank pages for the insertion of any additional formulæ or notes. The book is made up of flexible morocco, with side index, wallet and flap, which add very much to its attractiveness, and make it very convenient to carry around. The press work is well executed.

A TEXT-BOOK OF MEDICAL CHEMISTRY AND TOXICOLOGY. By James W. Holland, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College, Philadelphia. (New) Second Revised Edition. Octavo of 655 Pages. Fully Illustrated. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $3.00 net.

Dr. J. W. Holland in this book has produced a work which is understandingly readable and has presented his subject in such a manner as to please the most scientific reader. The introductory chapter is very good and covers the essential principles of physics which a medical student is expected to have when he enters college. The author's reputation for his ability in this field of medicine is well established, and the book will certainly prove its worth and usefulness. In addition to the good descriptive text and colored plates, the author has inserted numerous illustrations and diagrams to illustrate the various experiments and apparatus used in the generation of the various gases and the performance of the different tests. The contents of this volume have been thoroughly revised and made to accord with the recent edition of the United States Pharmacopœia and the advances in physiologic chemistry. This work is arranged systematically, covering: "The Chemical Elements," "Organic and Physiologic Chemistry," and "Energy of Foods." The chapter devoted to the urine is especially valuable, owing to the fact that it contains the latest improvements in urinary tests. The attractive type, on a fine grade of paper, add much to the pleasure of reading. A good index is appended, and to good advantage.

Constipation and Intestinal Obstruction. By Samuel G. Gant, M.D., LL.D., Professor of Diseases of the Rectum and Anus in the New York Post-Graduate Medical School and Hospital. Octavo of 559 Pages, with 250 Original Illustrations. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $6.00 net; Half-Morocco, $7.50 net.

This is one of the most important and recent books on the subject of constipation and intestinal obstruction (obstipation). The book is a large one, and the subjects are very extensively treated. The first part of the book is concerned with a simple and plain exposition of the anatomy and physiology of the stomach and intestines. Then follow chapters on the Etiology, Pathology, Symptoms, Diagnosis and Treatment of the various forms of Constipation and Obstipation. The great feature of this volume is the treatment. This feature occupies a considerable space, covering the psychic (moral) and dietetic (foods permitted and foods prohibited) treatments, exercise, internal and external hydrotherapy, massage, mechanical vibration, electricity and other physical therapeutic procedures and the medical treatment. Following this is a chapter devoted entirely to formulas, which will prove of great value to the practitioner. The author discusses in detail the various non-medical and surgical means at hand which have proved of value, and are based upon the results obtained from personal experience. The latter part of the book considers the surgical treatment.

The real merits of this volume lie in its description of operative technic, and every step is treated thoroughly. We regard this book as a valuable addition to medical literature, and we bespeak for it a cordial reception. The author has dealt with every phase of the subject in a thoroughly scientific manner, and the entire subject is adequately and judiciously considered. The typography and binding are excellent, but especial mention should be made of the illustrations, which are very striking and elucidative.

Transactions of the American Climatological Association for the Year 1908, Volume XXIV. Philadelphia: Printed for the Association, 1908.

This volume of the Transactions is exceptionally interesting. The contributions are very good, and among the interesting and instructive are: "Effect of Climatic Conditions in Tuberculosis;" "Climate and Hay Fever;" "Calmette and von Pirquet Tuberculin Tests in Children;" "Pulmonary Actinomycosis;" "Cardiac Dangers in High Altitudes;" "Medical Gymnastics in Early Myocardial Incompetence;" "High Frequency Electricity in the Treatment of Cardiac Diseases;" "Aneurism of the Aorta and Pulmonary Artery;" "Endocarditis," etc. The papers give trustworthy expositions of everything that is new and interesting. It is full of practical hints and useful information.

The Death of Lincoln: The Story of Booth's Plot, His Deed and the Penalty. By Clara E. Laughlin. Illustrated from Photographs. New York: Doubleday, Page & Co., 1909.

Miss Laughlin has succeeded in unearthing a great quantity of valuable information in connection with this terrible tragedy. The authoress shows not only a large storehouse of facts, but a clever talent for weaving them into readable form. The plot is traced from its birth in the brain of the clever but misled asssassin to the trial and execution of the conspirators. The writer has covered the ground in the most careful and painstaking manner. Many details which have hitherto been overlooked are given here and every effort has been made to substantiate all. The horror and consternation which seized the whole country after the perpetration of this terrible crime is graphically pictured; an extended account of the trial, in which it was so difficult for justice to be meted out to the accused, is given. With forty odd years shedding their light on these scenes we cannot but feel a wave of pity sweep over us as we consider the unnecessary severity of the treatment received by the prisoners. The great noble heart lying cold and still in Springfield would have been the first to plead mercy for the criminals. Among the many things which impress the reader is the broad impartial treatment of the entire subject. The authoress has evidently made a study of human nature. She sees with such a clear vision its weakness and its strength, and through her whole study runs a deep love and a strong true sympathy. While in no degree minimizing the fearful crime, the writer has succeeded in arousing much pity for the handsome brilliant misguided youth whose hand fired the fatal shot, and not for him alone, but also for those who were, by the magnetic personality of the actor, drawn into the plot and who shared his fate.

It is a book that is of great interest, not only from a historical viewpoint, but also as a character study. It should help the friends and enemies of the martyred President to a better understanding.

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Department in charge of J. MADISON TAYLOR, A.M., M.D.

EXTRA-UTERINE PREGNANCY.*

BY JOHN B. DEAVER, M.D., LL.D.,
PHILADELPHIA.

A BRIEF review of the history of this important subject ought to possess for us more than ordinary interest because of the important rôle played in its development by one almost of our own number and generation in whom we may take a pardonable local pride. I refer to the illustrious and lamented John S. Parry. He was not the first to write upon the subject. Indeed Albucasis, the Arabian, in the eleventh century recognized and described a case of extra-uterine pregnancy. Nor was he the first to grasp the possibilities of operative treatment in the emergency of rupture. That was proposed by Harbert, of New York, in 1849. The merit of Parry consisted not only in grasping the significance of the catastrophe and the correct mode of meeting the emergency, but in applying his philosophical mind and scholarly attainments to the production of a monograph which by its masterly marshaling of facts and lucidity of deduction should have quieted the doubts of Thomas. He was able to collect for his book, which was published in 1876, 500 cases reported in the literature. Of 499, in which the result was stated, 366 died and 163 recovered. Of the deaths, 174 had been from rupture. Of these deaths 81 had died within 24 hours. These figures were his text. He began his sermon with this sentence: "From the middle of the eleventh century when Albucasis described the first known case of extra-uterine pregnancy, men have doubtless watched the life ebb rapidly from the pale victim of this accident but have never raised a hand to

* Read before the Northern Medical Association of Philadelphia, February 26, 1909.

help her." Then, though not himself a surgeon, he points out the plain surgical indications. In the same year as the publication of his monograph he died, doubtless depriving the world of one who was destined to become one of its greatest figures in the advancement of medicine. Parry was a pupil of my father, who often used to speak of his studious habits and scholarly grasp. He was by nature fitted for mental leadership.

The honor of performing the first operation for this emergency went to Lawson Tait in 1883. He had been earnestly solicited to operate for this condition in 1881 by a physician who had correctly diagnosed a case of rupture with internal hæmorrhage. He refused, and the patient died shortly after. Unfortunately the first patient operated on died also, but his change of heart was complete, and, correctly attributing his failure in the first case to faulty technic, he altered his method and continued to operate all such cases. Of the next 40 cases only one died. Truly a brilliant record which was not long in converting the medical fraternity.

The original microscopical preparations of Tait in which he demonstrated his ideas on extra-uterine pregnancy and pelvic hæmatocele, which, before him, were in a very confused state, are still to be seen in the museum of the Royal College of Physicians in London.

There are many other names of more or less importance in connection with the development of the subject, but these two are central and all we have time to consider to-night.

In attempting to get a clear idea concerning the causation of extra-uterine pregnancy, one is quite awed and overcome by the vast number of hypotheses which have been advanced to account for this curious anomaly. It reminds us of the wealth of therapeutic suggestions with which we are favored in the case of diseases as yet resistant to all modes of treatment. It is not surprising that there is still considerable obscurity in the etiology. A correct understanding of the pathology of any condition presupposes a fairly exact knowledge of the normal physiology of the parts. There still exist many problems connected with maturation, ovulation, impregnation, implantation and development. Some of these problems carry us well back into the shadowy realms of the beginnings of life itself, that Ultima Thule of the biologist.

The incompleteness of our information concerning these abstruse secrets of Nature forces us here, as in so many other medical problems to resort to the methods of induction and experience and if we have not yet arrived at the point where we may safely take the inductive hazard it is because we may not yet have appreciated fully the saying of old Ambroise Paré that "such matters cannot be determined by sitting down and thinking but by hard unremitting toil."

Gradually, however, our knowledge of the normal functions of procreation has been expanding and a sufficient number of cases have been observed, recorded and analyzed to enable us to recognize certain factors which evidently play an important part in the etiology.

Lawson Tait originally thought that the ciliary current of the mucous membrane of the tubes and that of the uterus was in opposite directions, that

of the tubes being directed towards the uterus and that of the uterus moving upwards thus forming a natural meeting place of sperm and ovum at the fundus. He considered it abnormal for spermatozoa to gain an entrance into the tubes and held that impregnation occurring in the tubes through this accidental invasion of the spermatozoön was very likely to give rise to tubal pregnancy. This beautifully simple conception has yielded to the iconoclastic power of observed facts. We now know that the ciliary current of the uterus as well as that in the tubes is downward. We know that the spermatozoa can readily stem this current, their rate of speed being calculated by Henle as 1 cm. in three minutes.

We know that they quite regularly obtain entrance into the tubes and swarm up its lumen and it seems quite probable, if not certain that impregnation in the tube is common, if not the regular method. Once fertilization has taken place development begins at once. The ovum, comparable in many respects to a parasite, rapidly throws out the chorionic villi which lay hold on the maternal tissues and by erosion secure anchorage and open up the intervillous blood spaces. Just how soon the ovum displays these grasping tendencies is unknown. The youngest ovum of which we know was discovered by Peters in the uterus of a woman who committed suicide three days after missing her period. It measured .6 x .8 x 1.3 millimeters and was firmly implanted with numerous projecting villi in the process of formation. Certainly this ovum was less than a week old. Just what condition must be met by the maternal tissues to permit of implantation is uncertain. Webster is quite certain that there must be a decidual reaction and a number of observers have reported having seen decidual formation in the tubes. Normally the oösperm is swept down into the uterus before it effects a lodgment. The forces which accomplish this movement are the peristalsis of the tube and the action of the cilia. Whatever delays the ovum in transit permitting it to put out the anchoring villi, in the presence of a suitable soil renders imminent the occurrence of an extra-uterine gestation. Concerning the nature of the soil required by the ovum we are not so certain. Concerning the influence of delay which is governed by mechanical causes everyone is agreed.

These causes may be classified as:

1. Malformation: as, diverticula, accessory ostia, and persistence of the greatly convoluted fœtal contour of the tubes.

2. Obstruction from within: as in tubal polypi and torsion of the tube.

3. Obstruction from without: as in myoma and peritoneal bands and adhesions.

4. Inflammation, which acts by destroying the motor power of cilia and musculature and, secondarily, by the formation of different types of obstruction.

5. Excessive size of the ovum itself as in the delay which occurs in external migration of the ovum.

The importance of the inflammatory factor in the etiology of ectopic gestation is becoming more and more appreciated and is even of use in the diagnosis, a history indicating more or less pronounced salpingitis tending to

arouse our suspicions of the greater possibility of an extra-uterine pregnancy in a doubtful case.

According to the site of implantation we recognize several varieties:

1. The interstitial, located in that part of the tube which pierces the uterine wall.
2. The isthmial.
3. The ampullar.
4. The infundibular.
5. The ovarian.

These are the primary forms. Later the gestation sac by reason of rupture or growth may change its position giving rise to the secondary forms.

Thus the interstitial form may be converted into an intra-uterine by rupture into the cavity of the uterus, into an abdominal by rupture into the general cavity or into an intraligamentary by escape between the layers of the broad ligament. The isthmial and ampullar forms similarly may become tubo-abdominal, tubo-ovarian, abdominal or intraligamentary. An infundibular or ovarian pregnancy always tends to become abdominal. The last named condition is one of the greatest curiosities of abdominal pathology. All the undoubted cases of ovarian pregnancy so far observed can be numbered on the fingers. The interstitial and infundibular forms are almost as great rarities so that for practical purposes we have to do only with cases primarily isthmial or ampullar, of which the latter are most numerous, and with the forms secondary to these primary varieties.

The natural outcome of extra-uterine pregnancy is early interruption whether by reasons of insufficient blood supply or unfavorable mechanical conditions for the continued development of the fœtus.

The most common event is the formation of a tubal mole from the slow leakage of blood about the sac. This soon results in the death of the fœtus and cessation of growth. In this way spontaneous recovery may occur. I have several times in the course of pelvic operations encountered old tubal hæmatomata which were clearly the result of a previous tubal pregnancy which had terminated itself and retrogressed without giving the patient any great inconvenience. That this is not a frequent occurrence our clinical experience and the infrequency of such operative findings testify. There is evidence to show that even after the death of the fœtus the chorionic villi may continue to grow and exert an erosive action on the wall of the tube which coupled with the distention due to hæmorrhage may bring about a rupture. More common than this is the gradual extrusion of the mole from the fimbriated extremity, a process known as tubal abortion. Rupture of the tube and tubal abortion may take place rapidly without the previous formation of a mole. These are apt to be the fulminating cases.

Hæmorrhage is more free in case of rupture than in abortion as a rule: more free in rupture into the general abdominal cavity than in rupture into the broad ligament, more free when the site of rupture involves the placental attachment, and more free at the cornual end of the tube than at the ampullar end. This latter tendency was tersely expressed by Formad who used to say,

"Ruptured cornual cases belong to the coroner, ruptured ampullar to the surgeon." Surgery in its march has modified this statement but it still serves to point out the relative dangers. Hæmorrhage is the outcome of extra-uterine pregnancy which chiefly concerns us from a practical standpoint. It is probable that no case of ectopic gestation occurs which is not accompanied by hæmorrhage at some time. It may, however, be early or late, slow, or rapid, slight in amount or profuse.

It is the chief, though not the only factor in the production of so-called shock, and is the main agent in a fatal outcome. I shall have more to say concerning hæmorrhage under the question of treatment.

If the patient be fortunate enough to survive the primary rupture and the fœtus live, she still has to face the possibility of a second rupture of the gestation sac in its new position. Occasionally an extra-uterine pregnancy may progress to term. Usually this is rendered possible by the escape of the fœtus within its amniotic sac into the general abdominal cavity, the placenta remaining attached at the primary site. In this event, after a spurious labor at term, the fœtus dies and offers an inviting site for infection. Operation is here indicated on the same principle as in the case of any foreign body which threatens the host. This holds true in spite of the well-known fact that in some instances the fœtus has caused little harm, being converted into a lithopædion or adipocere. Such a late terminal event presupposes a series of diagnostic failures which we trust, now that the condition is so well known and understood, may not come to pass.

The symptoms of extra-uterine pregnancy include those due solely to the condition of pregnancy and those which arise only from its abnormal situation. Inasmuch as the majority of cases terminate within three months at which the ordinary signs of pregnancy are not usually pronounced, we do not often get much help from the symptoms belonging to the first group. Yet such symptoms and signs as enlargement of the breasts, the presence of colostrum, cessation of menstruation, increased vascularity of the genitalia, softening of the cervix and body of the uterus with slight enlargement, disturbances of the bowels or bladder, morning nausea, and the abnormal appetite, cravings or sensations which the multipara sometimes recognizes, are occasionally of confirmatory value.

It would be desirable to make the diagnosis before rupture were it possible to do so. Unfortunately a large percentage of cases give such trifling evidence of the true condition, if indeed there be any prodromal symptoms at all, that no suspicion is aroused. Still it is occasionally possible to make the diagnosis and it should be our effort to do so. One operator, Dr. Baldwin, of Columbus, Ohio, has reported 11 such cases.

The diagnosis in these cases rests upon: first, a consideration of the history. Important points for consideration are the age of the patient, exposure to pregnancy and the presumptive signs and symptoms, a history indicative of an antecedent tubal inflammation, a previous period of sterility usually of some years. This last point has been observed by all students of the condition and Parry remarks on what he calls "the previous inaptitude for conception" of these patients.

Amenorrhœa of shorter or longer duration is a fairly constant feature and is followed in the majority of instances by irregular bleeding from the uterus, sometimes profuse, sometimes a mere staining. The history of passing bits of tissue or the demonstration of decidua in the discharge is important.

Pain if felt before rupture consists frequently in vague uneasy sensations in the pelvis. Sometimes it is more severe, colicky in type and accompanied by nausea.

In cases which show any of these suspicious symptoms an internal examination should not be neglected. The demonstration of a pelvic mass lying outside of the uterus, in the presence of a probable pregnancy is a very suspicious circumstance. If this mass should correspond in size with the duration of pregnancy, if it should be located in the course of the tube, if it be movable, moderately soft and very tender, we may fairly conclude we are dealing with a case of extra-uterine pregnancy. It must be remembered that it is sometimes easy to mistake a retroflexed pregnant uterus for an extra-uterine pregnancy.

Often before a diagnosis *can* be made, usually before the diagnosis *is* made, rupture of the tube or extensive separation and hæmorrhage from the placental site supervenes. It was formerly thought that rupture was the most common outcome of tubal pregnancy. More careful examination of the specimens, however, has shown us that in many cases of supposed rupture we are dealing with a case of tubal abortion with hæmorrhage from the site of implantation. Moreover, hæmorrhage from this source while less violent as a rule than in rupture, may be very severe and even fatal. Frequently, however, it is comparatively slow and by slow leakage is responsible for the majority of hæmatoceles which we find. Recent statistics indicate that these tubal abortions occur more frequently than does rupture. The tragic stage, however, may follow either process.

Comfort not yourselves with the idea that rupture is not so frequent as has been supposed and therefore an extra-uterine pregnancy is not so dangerous a condition. Had operation not been urgently indicated these specimens of tubal abortion would never have been removed for examination. In short it is a matter of common knowledge that tubal abortion may give rise to a condition as serious as any of the accidents of ectopic pregnancy. I should not feel it necessary to insist on this fact were it not for an impression which is going abroad in regard to treatment, which I shall consider later.

Rupture is the most serious accident of ectopic gestation. It may take place very early and be the first symptom. Cases have been reported of rupture in the first or second weeks of pregnancy. Usually it occurs in the second or third months, but occasionally may be delayed into the later months. Secondary rupture may occur at any time after primary rupture up to term. Rupture is usually ushered in by severe lancinating pain in the hypogastrium, accompanied by shock, sometimes by syncope and frequently by nausea or vomiting. Following this the symptoms of internal hæmorrhage make their appearance. Increasing pallor, rapid and weak pulse, sighing and labored respiration and air hunger, dimming of vision, with increasing but slight dis-

tention of the abdomen, signs of fluid in the flanks, general abdominal tenderness most marked in the hypogastrium and a peculiar doughy feel of the abdomen which is readily distinguished from the usual rigidity of inflammation of the peritoneum.

There are the symptoms of rupture and of hæmorrhage *per se*. They are not always so frank and outspoken and in order to be sure of our ground it is frequently necessary to bring to our aid the history and the internal examination. In this condition as in so many others, the classical picture *in toto* is rarely seen and it has happened, paradoxically enough, as Douglas remarks that many more diagnoses are made nowadays since the integrity of all the classical symptoms have been repeatedly attacked than when a clear average picture had been drawn and accepted. It will do then to know that the three cardinal symptoms are pain, menstrual irregularities and tumor if we appreciate their variability.

The question of great and timely interest in connection with the treatment of extra-uterine pregnancy has to do with the management of the case at the time of rupture, with associated hæmorrhage and shock, and it is to the consideration of this phase of the subject that I wish to devote most of my time to-night. Before discussing this important question, however, I wish to direct your attention to the complications which may arise in such cases as escape the most imminent peril of shock and hæmorrhage. Thanks to the early operation these complications are rare nowadays, but I greatly fear, if the advocates of delayed treatment secure a following in the profession, that these cases may occur more frequently, and that cases which would be noted in the statistics of extreme conservatives as cures, will later succumb to a condition which is the direct result of the Fabian policy. I have already pointed out that spontaneous cures may occur without leaving a dangerous condition behind and have remarked on the rarity of such a favorable outcome. More usual is it for a collection of blood, often very large, to be left as a foreign body in the peritoneum.

These collections, or hæmatoceles excite a reactive peritonitis which serves to glue together the intestines and encapsulate the mass of clots. Absorption and organization of such a clot may take place, but is usually very slow. In the meantime not infrequently infection occurs. The danger of this is apparent when we realize that an hæmatocele is nothing but a most inviting medium for bacterial growth, situated about the rectum or lower bowel which harbors the most virulent bacteria. An infected hæmatocele is a serious condition and demands prompt evacuation and drainage. This is best done by way of the vagina, if possible. At times it is necessary to attack it by the abdominal route accepting the danger of a subsequent peritonitis.

Obstruction of the bowel is mentioned by Parry as the cause of death in a number of instances. The mechanism of this is by the peritoneal adhesions set up by the old extravasation of blood or a degenerated fœtus in neglected cases.

A pregnancy which is allowed after rupture to develop free in the abdomen or in the broad ligament later furnishes a very difficult problem to the surgeon

owing to the danger in dealing with the placental site, and the mortality in such cases is much higher than in the early cases. Left entirely to itself the fœtus often becomes infected, and the earliest records we have of extra-uterine pregnancies are of cases in which this occurred, the resulting abscess later spontaneously discharging through the abdominal walls, when its nature was surmised by the appearance of degenerated fœtal parts in the discharge. Sepsis, exhaustion and death were noted in 54 of Parry's cases.

With this brief review of the late complications of extra-uterine pregnancy I will proceed to a discussion of the immediate considerations concerning an active versus expectant mode of treatment in cases of rupture.

It has long been my practice to operate every acute case of extra-uterine pregnancy without delay and my results have been so uniformly good that it would never have occurred to me to reopen the question. Robb in 1907 came forward with the assertion that surgeons were losing many of their desperate cases from overhaste in operating during shock. He believes that shock is mainly due to the effect of the accident of rupture upon the nervous system, that it would be a great rarity for a patient to bleed to death and that cases in which the loss of blood in itself would be sufficient to bring about a fatal termination would seldom be seen in time to save the patient. He bolsters his position by animal experiments, having observed that dogs do not die of hæmorrhage even after section of the uterine and ovarian vessels.

Just what he considers the cause of death in these cases is not clear. The coroner's statistics of Dr. Formad, though he admits that it is on record that in certain instances the amount of blood which was found was enough to fill the abdominal cavity, he dismisses by saying that "such statements are entirely too meagre to give us any definite knowledge, nor can they be entirely depended on." He also says in this regard that "in a given fatal case it must also be proven that there were no other and possibly equally important factors in the causation of the fatal result." Such sublime confidence in one's opinions it is rarely vouchsafed us to see. He not only doubts that the coroner saw the blood but he invites us to prove that the patient did not die of cerebral apoplexy instead of abdominal hæmorrhage. As for the animal experiments I can only say that if he has not seen a woman die from hæmorrhage from a uterine artery, he has been more fortunate than I have been, and that I therefore still resort to the old-fashioned expedient of tying as secure a knot about that vessel as I am able.

Formerly it was not such an uncommon thing for these patients to bleed to death. Of the 500 cases reported by Parry there were 336 deaths, 174 of which were from rupture and hæmorrhage. Of 113 of these in which the time of death was stated 81 had died at the end of 24 hours and at the end of 48 hours only 15 were left alive.

Of course this gives a greatly exaggerated idea of the danger because in those days only the evident and severe cases were noted. Still it serves to show that without operation, death, which was shown by autopsy to be associated with excessive hæmorrhage, was not so uncommon a sequel. If these deaths were not due to hæmorrhage, what did cause them?

Has anyone seen a death from shock of rupture with an insignificant or even a moderate amount of blood in the peritoneal cavity? In the cases which I have seen in this so-called state of shock, the condition of the patient bore a striking parallelism with the amount of blood found in the abdominal cavity. I wish to enter a strong protest against the loose use of the term shock in this condition as well as the vicious tendency of such flashy phrases as "adding shock to shock." The great danger in these cases is not from the shock of rupture but from the subsequent hæmorrhage. Or to be very conservative, severe hæmorrhage is necessary to produce the fatal outcome. Let us consider for a moment this factor shock. It is known that any acute lesion of the peritoneum produces through shock to the great abdominal nerve centres a certain train of symptoms, whether the lesion be due to rupture of the appendix, twisted pedicle of an ovarian tumor, passage of gall-stones, acute strangulation of the intestine, or rupture of an extra-uterine pregnancy and to this train of symptoms Gübler has given the name 'peritonism.' These symptoms are independent of inflammation or of septic intoxication. They are: pain, profound exhaustion, distressful anxiety, pallor, soft quick pulse, cold extremities, shallow respiration, nausea and vomiting. These vary in degree and are common in some degree to all cases in which there has been a wide and abrupt impression upon the nerve centres of the abdomen. This is the train of symptoms which follow immediately upon an acute rupture of the gestation sac and gives the picture properly denominated as shock. This shock as such is practically never fatal. Clinical evidence is conclusive on this point. We do not find our patients dropping over dead from acute strangulation, twisted pedicles or tubal ruptures. The shock exerts its maximum influence at the moment of the tearing injury to the peritoneum and sympathetic trunks and practically ceases at once with the release of tension after the laceration has been effected. This factor is sudden, momentary, expends its energy and ceases. Reaction begins, or would begin at once, either spontaneously or with the aid of stimulants. This sudden insult to the peritoneum and the great sympathetic centres is not what places the patient's life in jeopardy and holds her hovering in the balance for hours.

This is but the advance agent of the real executioner, hæmorrhage. Let me read you the symptoms of shock in the same order as before leaving off the pain in the beginning and behold we have the symptomatology of hæmorrhage. Profound exhaustion, distressful anxiety, pallor, soft quick pulse, cold extremities, shallow respiration, air hunger, nausea or vomiting. Who is that man who will tell us in these cases where shock leaves off and hæmorrhage begins to play the leading rôle? Find him and let him be our king and rule over us for we know not how to do these things.

I feel most strongly that we are dealing here with a wrong use of words, that there is a sophistical "nigger in the woodpile." I do not believe that the patients reported by the advocates of the expectant treatment as suffering from shock were suffering from primary shock, but instead from shock plus hæmorrhage and that by the time they were seen by the surgeon, that hæmorrhage was playing by far the chief rôle. Those patients who are fortunate enough to

lose but a small quantity of blood at the time of rupture react from the shock with considerable promptitude. By the time proper surgical intervention can be brought to bear their condition is such as to give the surgeon little immediate anxiety as far as the shock of operation is concerned. These patients should be operated at once on account of the danger of secondary rupture or a renewal of bleeding. They should all get well.

An immediate operation detracts nothing from their chances but guards against imminent danger. Those patients, who, when seen an hour or several hours after rupture (I am speaking of conditions as we find them, for patients do not come to a hospital or doctor's office to be handy at the time of rupture), these patients, I say, who are hanging in the balance with the symptoms some are pleased to call shock, are not suffering from shock, but rather of shock plus hæmorrhage, shock in small type, hæmorrhage in large red capitals and the examples which these gentlemen adduce of reaction are not proofs of the wisdom of waiting but of the fact that many desperate cases will stop just short of bleeding to death if left to themselves, a fact which has for years been patent to all.

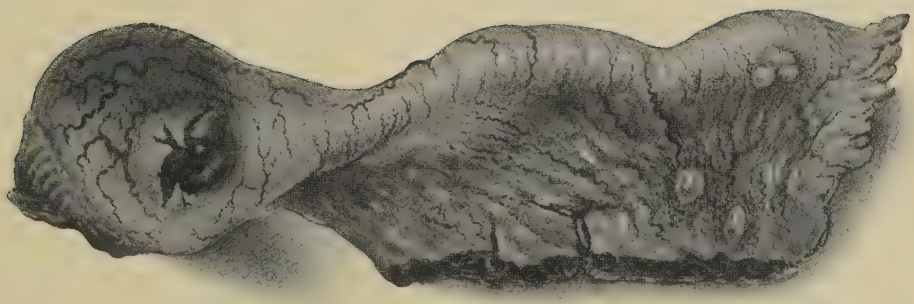
There are certain factors which would favor the cessation of bleeding such as a long and voluminous sigmoid or omentum wedging down in the pelvis, but as we are not often furnished with a diagram of interior arrangements in these cases, we do not know whether these staunch allies are on the ground. The character of the rent and the coagulability of the blood we cannot estimate. If we are going to treat these patients expectantly let us rob Justice of her blindfold and wrap it about the brows of Aesculapius.

As sure as there are immutable laws of hydrostatics and of the circulation of the blood, these patients have died in the past in considerable numbers from hæmorrhage and occasionally die to-day from that cause, and the only reason more do not die of it is because of the early operation practiced by clinical surgeons.

I am willing to grant that a patient should not have a "penknife" operation done on her before she has recovered from her first faint. There is reason in all things. It is equally true that a patient *in articulo mortis* should not be subjected to operation. "The resources of surgery are rarely successful when practiced on the dying. These principles, however, should not be made use of to attack a mode of treatment which has been crowned with the highest success."

My position then is this: A continuance of the collapsed condition, commonly, and as I believe erroneously, termed shock, for a longer time than one hour indicates that a considerable hæmorrhage has occurred and may be continuing. The surgical indications are clear—stop the bleeding; stimulate. Let us not revert to the dark ages in the ranks of those who "watched the life ebb rapidly from the pale victim of this accident but never raised a hand to help her."

Since 1900 I have had 110 cases of extra-uterine pregnancy, many of them of the acute type, without a death.



Tubal Pregnancy. (J. B. Deaver.)

My procedure in these urgent cases is as follows: If the condition be very low stimulation is begun on admission by hypodermoclysis and strychnia. If there is extreme restlessness, morphia is a valuable adjunct.

They are placed on the table with as little disturbance as possible and a light quick etherization given. Preparation is rapidly completed and intravenous transfusion of normal saline solution started as the abdominal incision is made. "Get in quickly, get out quicker" applies here as forcibly as anywhere in surgery. The offending tube and ovary are removed. The clots are scooped out, and if the condition of the patient warrants, the abdomen is flushed out and filled with normal saline before closure.

I have frequently seen the patient go off the table with a far stronger pulse and in better condition than before the operation, a sufficient refutation of the charge of "adding shock to shock." I have rather refused to allow hæmorrhage to be added to hæmorrhage, and now I am not afraid to fill her vessels with sufficient fluid to satisfy the mechanical needs of the circulation.

My last case, about two weeks ago, happened to be most appropriate to this discussion and with your permission I will give it in brief:

A young woman, aged 24, married three years, with nothing of note in her past history. She had had one child nine months ago, which died in January. No miscarriages.

Menstruation had always been regular and normal up to her January period which she missed. At the February period she bled quite profusely and for a longer time than usual. No staining since.

Suddenly at 6 A.M. on February 12th, during coitus she had an acute pain in the lower left side of the abdomen, followed in a few minutes by syncope. Soon she recovered, but fainted several times in the course of the morning and vomited several times. Gradually grew weaker and grew short of breath.

On examination she did not have a particle of color in her skin or lips. Expression was anxious: she was restless and dyspnœic. The pulse was about 180 and barely perceptible. Her abdomen was moderately distended and tender in left side low down. Vaginal examination was negative except for tenderness in the left lateral fornix.

She was taken to the operating room and subcutaneous infusion started with the ether.

Preparation having been quickly accomplished, the operation and intravenous transfusion were started together. A left sided tubal pregnancy (See Plate) the size of a hickory nut was found in the isthmial portion about 2 cm. from the cornual extremity. Through the tube was a perforation only about as large as a pin head. No time was wasted in determining whether there was any active bleeding. Tube and ovary were removed. As the patient's condition was improving on the table, I washed out the blood, of which there was a large quantity and filled the abdomen before closure with salt solution.

Her pulse, which before the operation was 180, at the end of the operation was 140 and much improved in quality. She was put back in bed and continuous proctoclysis started.

I wish to call attention to the value or rather necessity of filling the empty blood-vessels with saline in these depleted cases. Note the amount used in this case. By hypodermoclysis at the beginning, 1000 c.c. Intravenous transfusion during the operation 2000 c.c. Left in the abdomen at least 1500 c.c. Then in the twelve hours after operation her thirsty vessels absorbed by way of the large bowel 4000 c.c. additional. Nearly nine liters of saline, over two gallons of fluid to meet the mechanical needs of the circulation. Without this saline my patient would have run grave danger of dying on the table. As the intra-abdominal pressure is released by incision the blood flows into the "splanchnic tank" and from the great depletion due to hæmorrhage nothing is left in the great vessels for the heart to pump. The medullary vessels are asphyxiated and death results. This restoration of the fluid volume of the blood is a most important point and will eliminate what is, I suspect, the most potent factor in that additional shock so feared by the misguided advocates of expectancy.

THE IMPORTANCE OF CAREFUL POSTOPERATIVE TREATMENT IN RECTAL OPERATIONS.*

By HERMAN A. BRAV, M.D.,
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The ultimate success of rectal operations depends more upon the care which is exercised in the after-treatment than it does upon the technic during the operation. The surgeon's responsibility does not end with the completion of the operation, but continues until healing is complete. Many brilliant operations turn out to be failures because the proper after-treatment was not carried out. The object of the after-treatment is to discover complications early, and if found to treat them so intelligently as to give the patient the best chance for recovery and the best final result.

In the short time allotted to me I wish to confine myself to only the most common operations of the rectum, namely, operations for fistulæ in ano and hæmorrhoids. After the operation for fistulæ in ano has been completed, the wound must be packed tightly to prevent hæmorrhage. The dressing should be retained *in situ* by a well-fitting T bandage. The initial dressing should be removed on the second day. It is well to moisten the dressing with a mild bichloride solution in order to facilitate its removal. The wound must be kept as clean and aseptic as possible by daily irrigations with the bichloride of mercury 1-2000. Immediately after the irrigation a strip of iodoform-gauze is placed between the cut surfaces and part of it pushed down to the bottom with a probe so as to ensure healing up from the bottom. Such a dressing, if carefully carried out, will prevent the bridging over which may be the cause of the development of secondary fistulæ. On the fourth day after the operation

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* Read before the North Branch of the Philadelphia County Medical Society, March 16, 1909.

the bowels should be made to move freely by administering a purgative and henceforth a free action should be obtained daily during the entire treatment.

If any union of the granulations of the two sides is noticed it should be broken up at once. The bichloride irrigation should be kept up for several days, and each time the wound is dressed a careful search for pus pockets should be made, and if pocketing of the tissues is discovered they must be laid open. After a week or ten days and at the time when all evidences of suppuration are absent and healthy granulation has been established the bichloride irrigations can be replaced by a creolin solution of one dram to the pint. While it is advisable to keep the patient under observation until the wound has completely healed up it is not necessary to keep him in bed for a long time. This applies especially to tuberculous patients who ought to be allowed to be up and about as soon as possible and live in the fresh air and sunshine. It should be borne in mind that the constitutional treatment is of paramount importance. A nutritious and easily assimilated diet should be ordered.

Stimulants, tonics and constructives are extremely useful for promoting repair. The dressing of wounds made in operating for fistula in ano should never be left to the young resident or as is often done to the nurse, but should be done by the surgeon himself until a cure is effected. The novice can not be expected to differentiate between a normal, sluggish and exuberant granulation. It therefore, requires the experience of a surgeon to know when to stimulate and when to destroy granulations. I have only recently seen a case that has been operated upon by an eminent surgeon who kept the patient two months in the hospital confined to bed and at the end of that time told him he had to undergo another operation for another fistulæ. An examination showed a large cicatrized area one end of which did not heal up and the oozing of pus from it was continuous. The patient informed me that the surgeon never looked at him after the operation, and the dressing of the wound was done by the resident and nurse alternately. This case is a striking example of failure due to careless and improper management of the wound after the operation. I could cite a large number of similar cases but this one will suffice to demonstrate the result of careless after-treatment of wounds following operations for fistulæ in ano. Failures following operations for internal hæmorrhoids are likewise caused by lack of attention to the postoperative treatment. It is not enough to excise, burn or ligate off piles and then leave the healing up of the wounds to nature. Such a procedure often leads to a strictured condition of the anal canal or ulceration thereof. It should not be forgotten that the removal of a hæmorrhoidal tumor, by whatever method, leaves behind an ulcerated surface. The healing of these ulcers must be carefully watched and treated in order to prevent excessive granulation which tends to produce partial or complete stricture of the rectum.

Sometimes one of these ulcers fails to heal up, especially in a debilitated patient, and the irritation produced by such an ulcer makes the patient more miserable than he was before the operation. These complications can be prevented by intelligent postoperative treatment. After a hæmorrhoidal operation the patient should be kept as quiet as possible in order to prevent possible

hæmorrhage. The anal canal should be irrigated twice daily with a creolin or any other mild antiseptic solution. The irrigation of the anal canal is best accomplished by asking the patient to force down the anus and while doing so the ulcerated area is irrigated or bathed as it were. Thirty-six hours after the operation the patient is given fractional doses of calomel followed by a saturated solution of magnesium sulphate to secure a thorough evacuation of the bowels. If this does not produce the desired result an enema should be given to supplant the cathartic.

It is desirable to ensure a daily movement and immediately after the movement the anal region and the ulcerated area should be irrigated with a creolin solution, one dram, to the pint. The wound should be inspected at each dressing and if found to heal sluggishly it should be stimulated with silver nitrate or balsam of Peru from time to time. Exuberant granulation which eventually leads to the development of cicatrical contraction must be checked. A good method to prevent narrowing of the anal canal after a hæmorrhoidal operation is the passage of a rectal bougie. Commencing about a week after the operation and continuing it during the process of healing of the wound the daily passage of a smooth glass rectal bougie or dilator about one-half inch in diameter will invariably prevent the occurrence of cicatricial contraction. The bougie should be kept in the rectum for five or ten minutes.

The patient need not be confined to bed longer than a week or ten days but should be under observation for at least four weeks. I do not wait until symptoms of contraction appear but make it a routine practice to pass bougies daily at the end of the first week after the operation. Patients may, after two weeks, follow their usual occupation and call at the office or hospital for this treatment. If this treatment has been carefully carried out, the patient can safely be discharged at the end of four weeks. I have employed this method for several years with excellent results and I have yet to see a case of stricture following this mode of postoperative treatment. It must be admitted that constriction of the upper part of the anal canal is apt to follow a free removal of piles in spite of the best surgical technic.

Since it is difficult to foretell which one of the cases will be followed by this complication, it is best to resort to the passage of the bougie in every case. The introduction of the bougie while the patient is straining as much as possible is not attended by any discomfort and is cheerfully tolerated by patients. In conclusion I would like to reiterate that a successful issue in most rectal operations depends more upon the after treatment than upon the operation.

THE IMPORTANCE OF THE JOINTS OF THE PELVIC GIRDLE.

By JOEL E. GOLDTHWAIT, M.D.,
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Since the first article upon the pelvic articulations was published by the writer in *Boston Medical and Surgical Journal* (May 25, June 1, 1905), the importance of these structures, both as regards their own tone and as regards

the functions of other portions of the body, has been increasingly evident. It has been demonstrated beyond question that the pelvic bones are joined together with three true joints which are made up of all the structures peculiar to a joint, and that motion is a natural part of their function. The age and sex are of no importance in this except that, naturally, in childhood the stability of the joints is apt to be less than in adult life and except that with women the stability is less than with men because of the possibility of childbearing. It has been clearly shown that, with women, under certain conditions the stability of these joints is naturally greater than at other times. As a physiological part of pregnancy they are relaxed, at times to quite an extreme degree, but practically always enough so that if the mechanism of the possible motion is understood the character of the labor can be very greatly modified. It is also true that at each menstrual period there is a physiological relaxation of the pelvic joints, menstruation being simply a miniature pregnancy, from the physiological point of view, and that this explains many of the backaches so commonly supposed to be due to pelvic organ disease there can be no question. Not only are these facts true, but if there be any disturbance of the circulation of the pelvic organs, there may be a reflex relaxation of the joints and instability result from this, facts of much importance in deciding the nature of the treatment from either the point of view of the joints or the pelvic viscera.

The planes of the articulation of the pelvic joints are such that the support of these joints and their stability must depend almost entirely upon the tone of the muscles and ligaments. The joint at the symphysis pubis is vertical. The sacro-iliac joints are oblique, inclining only a few degrees from the vertical, with flat surfaces and with no element of support other than that represented by the soft structures. The pelvic girdle, representing as it does the structural base of the body to which all of the trunk muscles are attached and to which practically all of the thigh muscles are attached, is naturally of great importance in the matter of proper use of the body. If the joints are weak it is naturally impossible for the patient to use the body rightly, to maintain the proper poise, or to withstand strains of any form, because the muscles which are attached to the pelvic girdle cannot act rightly if the base to which they are attached is insecure. Not only this, but it is useless to attempt to strengthen the muscles of the trunk or thighs if the base to which these muscles are attached is weak. Recognizing the fact that the joints depend upon the muscles for their support it is at once apparent that use which overtires these muscles must take away from their support and consequently be harmful. Attitudes or occupations that keep the body flexed for long, since under these conditions the spinal muscles must be strained, are distinctly undesirable.

The affect upon the body which lack of stability of the pelvic joints occasions is shown partly by the limitation in activities, partly by peculiarities in gait—the weakness at times making locomotion almost if not entirely impossible, and making it impossible to use the body in the erect position.

The importance of the erect position has been shown to be far greater than simply the æsthetic importance, since if the body is used in the drooped or flexed position, not only are the muscles and joints still further strained, but

the support which the viscera should receive from the abdominal muscles and from the various fossæ in which they should be held by the muscles no longer exists, and displacement or malposition of the viscera or interference with their function is a necessary result.

TUBERCULIN THERAPY.*

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The renewed interest in tuberculin as a curative agent in the treatment of tuberculosis has become so manifest and my personal experience with it for the last eight years, especially with a certain method of its use, has been found of such supreme value, that it seems worth while again to call attention to this subject. And I am more emboldened to do so from the fact that the history of tuberculin since its discovery in 1890, teaches that its scope as regards its action and dosage has never been properly understood by the profession at large, and also by the favorable reports of reliable clinicians the world over, who have lately given this method of treatment their unqualified endorsement.

The causes of failure of tuberculin therapy in its first epoch, and the negative results that followed can be accounted for in two ways: (1) the remedy, with few exceptions, was employed in a faulty manner, and (2) the pathological findings were falsely interpreted by the profession.

Notwithstanding Koch's guarded announcement as to the limitations of the remedy, it was received with enthusiasm, and too much tuberculin was given in too short a time, producing thereby a condition of excessive intoxication, the organism being overloaded with toxins. For example, one of Rutmeyer's patients received eleven injections in eleven days; in spite of this fact, his temperature rose to 104, and he lost eleven pounds in weight; on the sixth day he received 30 mg., and 7 days later he died of acute tubercular meningitis. No human organism could indefinitely stand such heroic poisoning. Such a method to-day would be branded as malpractice. In view of such disastrous results, there is little wonder at the revulsion of feeling against the remedy, to the extent that it was criticised, condemned and almost abandoned. But a decade passed, interest revived, and like all truths, though wounded and "crushed to earth, shall rise again." To-day, thanks to such men as Wasserman, Wright, Trudeau and Baldwin, we have the renaissance of an almost forgotten method, which illumined by their splendid geniuses, bids fair indeed, to become one of our most valuable assets in medicine.

Varieties of Tuberculin.—For practical purposes, it is necessary to mention only four preparations of tuberculin:

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* Read before the Medical Association of the Carolinas and Virginia, Charleston, S. C., February 16, 17, 1909.

1. Tuberculin "O", or old tuberculin, is a liquid, or bouillon upon which has been grown tubercle bacilli, which, killed by heat, are filtered out, leaving a clear filtrate to which is added five per cent. of glycerine. This, by evaporation, is reduced to 1/10 of its volume.

2. Denys's tuberculin is a germ free filtrate from bouillon cultures of the tubercle bacillus, and contains the same soluble products elaborated by the bacilli as are found in old tuberculin, and differs in no particular from the latter, except it is made without heat.

3. The new tuberculins "T. R." and bacillin emulsion consist of the pulverized bodies of the live, virulent, crushed, tubercle bacilli. These are more toxic, and if any of the undissolved fragments of the bacilli of the emulsion should by mishap enter the system, they would set up a new process. They, however, are more antibacterial, while old tuberculin, and Denys's are more antitoxic and therefore more active in the production of immunity. Old tuberculin has the advantage over all others in that it is prepared by addition of heat, which removes the possibility of re-infection.

4. Von Ruck's watery extract, consists of the pure solution of the germs only, into which no culture fluids enter, and being filtered through porcelain, is absolutely free from any germs, or fragments thereof. He claims that the superiority of his method over all others consists in the fact that he has succeeded in extracting the fats from the bodies of the bacilli with sulphuric ether, and that this leaves a perfectly soluble proteid, the essence, as it were, of the bacillus.

The Action of Tuberculin.—The mode of action of tuberculin is not fully understood, and the limits of this paper will not allow a full discussion of the different theories advanced by investigators in the elucidation of this question. They are all based on the principles of *active immunization.* Koch's idea was that of a local action on diseased areas; Ehrlich ascribes it to the union with receptors of the tissue cells; Metchnikoff, to phagocytosis; Wright, to the increase of opsonins in the blood, and Sajous, to its power of stimulating the "test organ" of the pituitary body, the latter being the nerve centre which controls the functional activity of the thyroid and adrenals and through these organs, the immunizing power of the blood.

From the best evidence obtainable, it seems that *parts* of all of these theories are correct.

Metchnikoff's demonstrations of the phagocytic properties of the leucocytes are now established on a firm basis. Perhaps the most important discovery is that by Wright of the opsonic power of the blood by which bacteria are sensitized and prepared for ingestion by the leucocytes. As Wright says, "increased opsonic phagocytic response is associated with successful immunization, or cure, and this increased phagocytic response is dependent on the opsonic power of the blood fluids and not on the increased capacity for spontaneous phagocytosis on the part of the white blood-cells. But Wright has failed to show the *origin* of the "opsonins," and also whether they contain all the elements, with the leucocytes, necessary for complete immunization; for as Trudeau well says, "we, as yet, are unable to say how reliable a criterion of immunity the opsonic

power of the blood really is, because opsonins after all, constitute but one of the antibodies produced in immunity reactions." This is where Sajous's labors come in.

In his recent work on the "Internal Secretions," in the manner of a master only, Sajous has pointed out that the blood's immunizing properties are found in the secretions of the ductless glands, and makes this postulate; "the power of the system to antagonize the constitutional effects of the pathogenic germs, is directly proportionate to the functional efficiency of the adrenal system," the latter being composed of the pituitary body as governing center, the thyroid glands, and the adrenals. According to this view, it is by and through the adrenal system that all the immunizing substances are manufactured, and instead of having a multiplicity of antibodies he resolves them into two groups, both caused to appear in the blood by the exciting action of the tubercular toxin on the adrenal center: the *preparatory* group (opsonin, agglutinin) composed, as shown by correspondence of chemical tests, of the thyro-parathyroid secretion, which sensitizes bacteria and toxin, and the *bacteriolytic* or *antitoxic* group (amboceptor and complement in plasma and phagocytes) composed, as also shown by chemical correspondence, of the adrenal secretion, a trypsic ferment, and nucleoproteid granulations of certain leucocytes.

Gruber, Wright and others had expressed the view that the antibodies were internal secretions of the tissues of the body and the opinion prevails that they are physiological products of tissue cells, but Sajous has shown that while they are present more or less in all tissues, their *original* source is the thyroid adrenals and pancreas, since removal of either of these organs inhibits the immunizing power of the body and of all cells. In the blood, the antibodies act chemically (by hydrolytic digestion) upon the bacteria and their toxins, in his opinion, these pathogenic substances being thus converted into benign and eliminable products.

Sajous's work in this connection is too recent, however (1907), to have received the benefit of much experimental and clinical study by others, but what has appeared so far, has sustained him. Fassin, of the Bacteriological Institute of Liége, Belgium, found since that "the bacteriolytic and hæmolytic alexins were increased when thyroid preparations were given in any form," while Marbé, of the Pasteur Institute, found that this applied to opsonins, "the phagocytic activity of leucocytes for various bacteria, including the tubercle bacillus and the bacillus coli, being markedly increased," under the influence of thyroid. Conversely, removal of the thyroid gland reduced greatly the opsonic power of the blood.[1]

Now the pathological side. As tuberculosis is both a bacillary and antitoxic disease, we have two processes going on in the tubercular area; "one, sclerosis, encapsulation (conservative and healing); the other, caseation, softening, destructive and dangerous."[2] Therefore, the rational application of tuberculin can be had only in strictly localized processes, and in early pulmonary

1 Pratique Médicale, October, 1908.
2 Osler.

tuberculosis, where the focus of infection is cut off from the blood-stream. "In this class of cases," says Douglas, "the 'opsonic index' is persistently low, owing to the absence of the immunizing stimuli." In the formation of tubercle, there is lowered vitality in the focus of infection, caused by the absorption of the "bacteriotropic" substance by the tubercle bacilli; and because there is a deficit of autobacterial substances in the foci, is owing to the fact that their conveyance through the lymph-vessels is greatly hindered by the barriers in the form of fibrous capsule around the tubercle. Under these conditions, it is evident, therefore, that tuberculin can act on the bacilli, only in an indirect way; and this consists in raising the nutritive power of the cells in and around the infected focus, where we get encapsulation of the tubercle, and at the same time, revitalize the tissues, making them *uninhabitable* for the bacilli. But the bacillus *still retains its poisonous properties,* and at some future time will become dangerous to the organism through diminished cell resistance. Therefore we must seek such agents as tuberculin, which are specific in their nature, under whose influence the body will secrete protective substances—the opsonins, antibodies, etc., in sufficient amounts to diminish or destroy the vitality of the bacilli or neutralize their toxins.

Therapeutic Use of Tuberculin.—The efficiency of tuberculin as a curative, as well as, a diagnostic agent, has been proven to such a degree that it has passed beyond the pale of controversy. As proof of this Trudeau states that after 15 years of treatment with the remedy, he obtained permanent results in 18 to 25 per cent. of cases. It is proven by Wright that after injection of a dose of tuberculin there occurs a decline of "negative phase" which lasts from two to fourteen days, according to the dose. This corresponds to a decline in the antibacterial power of the blood. Then there occurs *a rise* or "positive phase," which clinically, is characterized by general improvement, dependent on the amount of antibodies produced. This may be maintained by repeated injections of sufficient doses at proper intervals; and in this consists the *essence* of the method; that the dose be so regulated as to quantity and time that no reactions of a serious nature, shall occur, and the patient's opsonic power shall be kept at "high tide."

I believe that moderate reactions of 99° to 100° F. of fever with slight physical symptoms, are conservative and do good to the patient. When tuberculin was first introduced it was believed that strong febrile reactions were necessary. "Experience has proven this to be incorrect. While an occasional reaction may unavoidably occur, we should take every precaution to avoid them. When the reactions are violent and frequent, it is an indication that the tuberculin is having a bad effect and should be discontinued." These violent reactions are due to over-stimulation. The curative action of the tuberculin is due not only to the reaction in the local area of infection, but it has a stimulating effect on the body cells, "a stimulation" says Trudeau, "which results, in the production of some sort of antibodies in these cells, as well as possibly an increased activity of the phagocytes. For these reasons a small dose, very gradually increased and continued a long time is the best method of treatment possible."

Indications.—The type of cases most desirable and, which, in my experience has yielded almost invariably good results, are:

First: The incipient and moderately advanced cases, which are mostly afebrile, with a temperature ranging at times not over 100° F. and whose nutrition is good.

Second: Uncomplicated first and second class cases with fever, although bacilli are found in the sputum.

Third: Fibroid cases without febrile reactions.

Fourth: Cases where fever is due solely to the toxin of bacilli and will not abate under rest and hygienic treatment; small tentative doses may do good.

Contraindications.—1. Acute miliary cases.

2. All third stage cases with mixed infection.

3. Second stage cases with bad nutrition and mixed infection.

4. Hæmoptysis. When hæmorrhage occurs, it is a signal to stop the use of tuberculin temporarily, until all signs of danger from hæmorrhagic lesions have gone.

5. Heart disease. Where we fear that compensation might be lost by active stimulation from tuberculin.

6. Where the frequency and weakness of the pulse are present without any recognizable heart lesions.

7. Weak and greatly emaciated patients with a feeble and fast heart action.

8. All complications of internal organs, and nervous diseases (Ringer).

A daily record of temperature for three days should be kept before beginning treatment. The injection should be given in the morning. The patient should not exercise during the day. He should keep a two hours' record of temperature each day, until next injection.

Alcohol and all intemperance must be sedulously avoided.

Reactions.—Reactions are a combination of symptoms which are indicative of over-stimulation by tuberculin, and may be of all grades:

First: Systemic reaction. This is the most important, and makes itself felt and known in from six to twenty-four hours after the injection of tuberculin, with rise of fever from 100° F. to as high as 105° F. Then comes chilliness, with aching limbs, and back with a tormenting headache, general malaise and nausea.

Second: Local reaction. (*a*) In the lungs. There may be increased cough and expectoration, with mucus tinged with blood. The physical signs are more or less increased, especially the râles become more moist, and respiration prolonged. All these are indicative of hyperæmia of tissues surrounding the local process. (*b*) In the larynx, the mucous membranes become red and congested; the ulcers are reddened, and there is an hyperæmic condition of the surrounding tissues, and increased hoarseness may occur. (*c*) The skin. In from 6 to 10 hours after injection there appears a red hyperæmic circle the size of a silver dollar around the site of the injection. It is tender, painful on pressure, and slightly œdematous. It lasts from two days to a week, and gradually disappears.

Dosage.—The most important feature in tuberculin therapy, and one on which success or failure depends, is the question of dosage. Whether we adopt the opsonic index as a guide, or rely on clinical symptoms, the one important thing is, the *correct dose.*

Therefore to be on the safe side, we should:

First: Begin with an infinitesimal dose.

Second: Do not shorten the time by increasing the doses too rapidly, or decreasing the intervals. As all tuberculins have the same reaction, and their effects are identical, it is a matter of personal choice which preparation one should use. I have used only two; old tuberculin, and the watery extract. In using old tuberculin, we should prepare five serial dilutions in 5 vials, each dilution being 10 times stronger than the preceding one. The initial dose of No. 1 is 1/1000 of a mg., and No. 2, 1/100 and so on, until No. 5 is reached, which contains 10 milligrams to the dose. The beginning of each dilution is 2 minims. We begin with 2 minims and progressively increase until 20 minims are injected. Then begin the next series. Injections should be given twice a week. Having a graduated syringe holding 1 c.c., I begin with 2/10, or about 2 drops, and increase by tenths until 20 minims are given. We then change to the next dilution No. 2, and then proceed in the same way, and so on until the highest series is reached, remembering all the time that we are proceeding under the decimal system, and that each series is ten times stronger than the former. If reaction appears at any stage, then we should discontinue until three days after normal temperature has been reached. Then begin with half of the original dose, and proceed cautiously lengthening the intervals.

The main principle is so to regulate the dose and interval that the maximum dose may be reached with as little disturbance as possible. The intervals should be lengthened gradually, as the highest doses are reached, and extended to two weeks between the last few injections. The treatment should last from six months to two years.

Results.—To quote Trudeau and Denys, the principal faults leading to failures are:

First: "Beginning the treatment with too large amounts."

Second: "Raising the dose too rapidly, or at too short intervals."

Third: "Injecting again before the effects of reaction both constitutional and local have passed away."

Fourth: "Increasing the dose after reaction has occurred."

Hence the failure in, or danger of, tuberculin treatment lies principally in the faulty and reckless manner of administration of the remedy. The crucial test after all, of the efficiency of this method of treatment of tuberculosis, lies in the comparison with that of sanatorium methods alone. The best evidence of this comparison is found in Trudeau's experience of 15 years which shows that there were from 18 to 25 per cent. *better results* from tuberculin treatment than sanatorium treatment alone. Pottenger's statistics confirm this statement, in that the results are 20 per cent. in favor of the tuberculin-treated cases.

All this speaks well for the future of tuberculin treatment, which bids fair to become one of the most effective methods of warfare against "The Captain

of the Hosts of Death." At no time, and under no circumstances, however, do we consider tuberculin treatment superior to the dietetic and hygienic and open air treatment, *it is only an adjunct.*

THE ADRENAL PRINCIPLE AS THE MAIN ACTIVE AGENT IN PITUITARY, TESTICULAR, OVARIAN AND OTHER ANIMAL EXTRACTS.*

By CHARLES E. de M. SAJOUS, M.D.,
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Permit me, Mr. President and gentlemen, to thank you for the honor you have bestowed upon me in inviting me to address you on the subject of opotherapy. What work, experimental and clinical, I have done in that direction has had for its purpose to ascertain if possible the limitations of this branch of therapeutics and to do what I could to place the whole subject on a higher plane than it has occupied. The question taken up in this paper is quite in keeping with this purpose since it aims to determine the active factor in some of the agents to which virtues innumerable have been ascribed, and thus to enable us to employ them, not empirically as they are now used, but with scientific accuracy.

Those of you who happen to be familiar with a work on the internal secretions, published recently, may have noticed that I do not refer to animal extracts other than those obtained from the thyroid, parathyroids and adrenals. This was because the physiological action of these products seemed to me to correspond to such a degree with the effects of extracts derived from certain other organs that I began to suspect that the agents which produced them had a common source. Further study of the subject strengthened this impression; it suggested in fact, that such a relationship actually existed, and that the effects of ovarian, testicular, and pituitary extracts, for example, should not be ascribed to any internal secretion specific to each of these different organs, but to substances which they contained in common. It is a brief review of the line of evidence which points to this fact that I am about to submit to you.

Before doing so, however, I must briefly review the functions of the adrenals as my researches have led me to interpret them.

Over ten years ago efforts were made to compensate for the destruction of the adrenals in Addison's disease, by grafting two of these organs, obtained from dogs, into the abdominal tissues of each case. The patients died promptly. Courmont, referring to a patient personally observed whose death occurred twenty-four hours after the operation, states that, although there had been no infection of the wound, death was preceded by what he termed a "formidable hyperthermia." How account for this excessive temperature? Text-books of physiology or of pharmacology afford no clue to the manner in which this

* Read by invitation before the Medical Society of Kings County, Brooklyn, April 20, 1909.

phenomenon could be produced. Viewed from my standpoint, it represents the fundamental expression of the action of adrenal preparations. Six years ago, I advanced the opinion, based on considerable experimental and clinical evidence, that the adrenal secretion took up the oxygen of the air in the pulmonary alveoli to become that constituent of hæmoglobin which, stored in the red corpuscles, distributes oxygen to the tissue cells to sustain oxidation and metabolism. When we recall that Reid Hunt[1] noted that less than six millionths of a gram of epinephrin per kilo of bodyweight sufficed to cause a rise of blood-pressure of 66 mm. Hg. and that Lépine[2] found that this phenomenon was always followed by a rise of temperature, the cause of the untoward effects of grafting of two adrenals becomes self-evident when the functions I have attributed to the adrenals are taken into account: Ungoverned by nerves, as they are normally, the artificial organs introduced into the circulation a quantity of adrenal principle representing thousands of doses; these caused excessive tissue oxidation and the "formidable hyperthermia" to which Courmont refers.

The morbid effects of grafting is not the only phenomenon explained by the influence on oxidation and metabolism I attribute to the adrenal secretion. It may, in fact, be regarded as the one function which enables us to explain all the therapeutic effects of adrenal preparations. Thus Crile[3], by means of adrenalin largely diluted in saline solution, and simultaneous artificial respiration, resuscitated animals fifteen minutes after all signs of life had ceased and kept a decapitated dog alive over ten hours. With the adrenal principle as the active factor in metabolism, *i.e.*, in the vital process itself, these wonderful results are readily accounted for. This applies as well to shock in which, as shown by Kinnaman[4] the fall of temperature is the most uniform and progressive factor, and also to Addison's disease in which the activity of the vital process is so reduced that, as observed by Rolleston[5] the cases sometimes emit a cadaverous odor. Such disorders as asthma, migraine, hay-fever, often benefitted by adrenal extract, are generally ascribed to deficient nuclein catabolism, itself due to imperfect oxidation. Its beneficial use in neurasthenia is obviously due to the improved oxidation and nutrition of the nervous system it insures—an explanation which applies equally well to myasthenia and vasculocardiac atony, in which the muscular elements are relaxed because of inadequate cellular metabolism and nutrition. Even the local effects of adrenal extractives, suprarenalin, adrenalin, epinephrin and others, are explained by the same process, the intense vascular contraction which arrests hæmorrhage or causes blanching of the mucosa being due to the intense metabolic activity these agents awaken in the muscular coats of the arterioles over which the solution is applied.

The clinical indications of adrenal preparations thus harmonize perfectly with the functions I attributed to the adrenals in 1903. The significance of this fact is plain when we consider that all the sound experimental evidence bearing upon the question contributed before 1903 and since, has only served to strengthen my position.

Now, it is this action of adrenal preparations on oxygenation and metabolism which I have been led to consider as the foundation, as it were,

of the physiological effects of organic extracts obtained from such organs as the pituitary, testes, and ovaries which are thought to produce internal secretions. The evidence to this effect will be reviewed when these various agents will be considered individually.

Another factor, though hardly perceptible clinically in the physiological effects of several organic extracts, is the thyroid secretion they happen to contain. Though not appreciable, its action is nevertheless important. In practice, the effects of thyroid preparations we witness are those of relatively enormous doses of the thyroid principle. The proportion of this principle produced in the body itself and utilized by the tissues under normal conditions, is relatively minute because its purpose is not to evoke phenomena which our experience would lead us to expect—loss of flesh, tachycardia, general vasodilation, etc.—but precisely the opposite—increased nutrition, slowing and increased vigor of the heart beats, and elevation of the blood-pressure. These are obviously the characteristic effects of the adrenal secretion or preparations; indeed, the minute proportion of thyroid secretion does but one thing: it enhances the oxidizing power of the adrenal secretion.

The wonderful results of thyroid preparations in myxœdema and cretinism need but be recalled to illustrate the potent influence these substances exert upon the organism at large. How are these marked changes accomplished? Referring you to evidence submitted elsewhere,[6] I will merely recall that from my viewpoint thyroid preparations bring them about in the following manner: In keeping with the thyro-parathyroid secretion itself, they increase the sensitiveness or inflammability of the blood and tissue cells to oxidation, by acting directly, mainly through their thyro-iodin, upon the phosphorus which these cells, and particularly their nuclei, contain. This process may be likened to the familiar laboratory experiment in which iodine and phosphorus, when in contact, unite, and produce enough heat to cause ignition of the phosphorus. All nerve centres being, as such, rich in this element, the adrenal centre is itself rendered more inflammable and functionally active, the result being an increased production of adrenal secretion and the appearance in the blood of a corresponding increase of this substance as the oxidizing constituent of hæmoglobin. Thus while, on the one hand, the sensibility of all cells to oxidation is dependent upon the proportion of thyro-parathyroid secretion in the blood, the latter also governs the production of adrenal secretion, so that there is always perfect equipoise between the inflammability of the cells and the oxidizing agent they need to insure the continuation of their intrinsic metabolism, that is to say, their life. Hence, under the use of thyroid preparations, the wonderful development of the entire organism in the cretin; all tissue cells, and particularly those of the brain and nervous system which are especially rich in phosphorus, become aglow, as it were, a fact emphasized by the marked rise of temperature. This is also exemplified by the excellent results afforded in sensitiveness to cold, as shown by Hertoghe.

The fact that thyroid preparations enhance both anabolism and catabolism is generally recognized. Each tissue, of course, responds in its own way to their influence. Their beneficial action in myasthenia and constipation, for example,

indicates their influence on muscular elements, just as the improvement obtained in rickets and delayed union in fractures attest to their direct action on osseous tissues; the rapid development of the intelligence in cretins and their action in neurasthenia shows their unmistakable action upon the nervous system, while their effects in alopecia and lupus testify to their influence on cutaneous nutrition. The increase of appetite which attends their use points clearly, moreover, to the greater need of food materials to satisfy the increased demands of the cell in every part of the organism.

Again, the thyroid gland has recently been found to be connected in some way with immunity. In 1903 I urged that the thyroid gland, by means of its secretion, took an active part in the auto-protective processes of the whole organism, and in 1907 that the thyroid secretion corresponded in its properties with Wright's opsonins. Both these views have been sustained in Europe recently, Fassin having found that bacteriolytic and hæmolytic alexins were increased when thyroid preparations were administered, while, Marbé of the Pasteur Institute, found that, as did opsonins, they materially increased the vulnerability of various bacteria to phagocytosis. This means that they are endowed with the property of sensitizing pathogenic micro-organisms, toxic wastes and other poisons that may happen in the blood much as they do on tissue-cells, as previously explained, thus rendering them vulnerable to the digestive or proteolytic action of the antibodies, both in the plasma and in the phagocytes. This accounts for the beneficial effects of thyroid preparations in disorders of the gouty series such as migraine, asthma, and the cutaneous disorders associated therewith, and in tetany, epilepsy, eclampsia, and infantile convulsions due to the accumulations of toxic waste products in the blood-stream. It explains also the good results obtained in certain cases of simple goiter; the remedy assuming the functions of the thyroid itself, the gland is no longer overworked and recedes. The same line of reasoning is also applicable to certain forms of exophthalmic goiter—those due to autointoxication from the intestinal canal. Closely associated with this process is the action of thyroid preparations in obseity, in which thyroid enhances catabolism.

Here, again, therefore, the physiological action I attribute to the thyroid secretion explains the mode of action of thyroid preparations in all the disorders in which they have been used more or less successfully. As is the case with these preparations, the secretion itself, being distributed throughout the body at large, including of course the various organs thought to produce internal secretions, as suggested by the presence of iodine in the pituitary, the testes, and ovaries, we would normally expect to witness its influence as a constituent of the extracts of these organs. But as explained above, such is not the case, the action of the adrenal principle being alone perceptible when extracts of various other organs are administered, as will now be shown.

(To be concluded in our June issue.)

Cyclopædia of Current Literature

AUTOINTOXICATION, INTESTINAL.

Nature gives us the cue in the treatment, by inducing vomiting and purging, which are plain signs that the economy is trying to rid itself of noxious material that interferes with normal metabolism. The stomach should be washed out with sterilized hot water and a dose of castor oil given; the writer has substituted this for colonic irrigation, which he believes to be a delusion, the tube simply coiling on itself so that no water ever reaches the colon. The castor oil is followed by copper arsenite, guaiacol carbonate or bismuth subgallate, and a hypodermic of morphine, ¼ gr. and atropine $\frac{1}{150}$ gr. A rigid abstinence from solid food for a few days is required. Many neurasthenics are benefited by a long sea voyage on a slow vessel. The Weir Mitchell treatment is suitable in many cases. Suggestion, without the various additions that in composition constitute the mental therapeutic properties, is of value. A. Dixon (Southern Medical Journal, November, 1908).

CORYZA, RECURRING, A MANIFESTATION OF AUTOINTOXICATION.

Numerous arguments are presented by the writer to sustain his view that recurring coryza, from simple "colds in the head" to pronounced hay fever, is merely one of the manifestations of the arthritic diathesis, that is, of a family tendency to sluggish elimination of waste products and toxins. He points out that the mucosa of the nose is an excreting organ, and the excretion through this mucosa of some of the toxins generated in the digestive tract may be one factor in recurring coryza. He has had a number of instances in his experience in which an error in diet was promptly followed by an attack of coryza. It is like the congestion observed in the face during difficult digestion. Reflex irritation from the digestive tract distends the vessels, heats and reddens the face, and by stimulating the glands renders the skin greasy and pimply. This same process in the nasal mucosa induces swelling, congestion and excessive secretion; the nerve fibers in the mucosa become irritated from the recurring or continuous autointoxication and the consequent hyperesthesia renders them peculiarly sensitive to dust inhaled or changes in temperature. He has found regulation of the diet, especially avoidance of meat and alcohol, the most effectual means of curing such patients. A little white meat at noonday is all he allows. If local measures are deemed necessary, he applies the actual cautery to the hypersensitive points. The cauterization must be deep enough to destroy the nerve filaments, but this alone is futile unless the underlying autointoxication is combated. The hypersensitive points in the nose are mainly the protruding points where lodge the inspired dust and microbes. P. Cornet (Presse médicale, January 16, 1909).

ENDOCARDITIS, INFECTIOUS.

Attention is called by the writer to a chronic type of infectious endocarditis in which, for months, the only symptom may be fever of an intermittent or remittent type. Malaria or tuberculosis is often suggested. There is almost always an old valvular lesion, but the murmur

may remain entirely unaltered in spite of fresh vegetations. An important feature in diagnosis is the appearance of erythematous spots, chiefly on the feet and hands. These vary from the size of a pea to that of a dime, and are red, raised and painful; they disappear in a day or so. They were seen in seven out of the author's ten cases. Wm. Osler (Quarterly Journal of Medicine, January, 1909).

HEMORRHAGE, INTERNAL, SALT IN TREATMENT OF.

The writer has studied for a year the use of salt by the mouth or in infusion as a means of controlling hemorrhage. His experience has confirmed the traditions in regard to the influence of salt in this respect. His research on animals and on healthy volunteers, as well as in the clinic, has demonstrated that salt enhances the coagulating power of the blood. It is remarkable, however, that it does not have this action in the test-tube, but it is marked in the living subject. He is inclined to attribute this coagulating influence to the mobilization of thrombokinase stored up in the tissues. In 29 cases of hemoptysis the author obtained excellent results from administration of 5 Gm. (75 grains) of sodium chlorid by the mouth, the coagulating properties of the blood being much increased thereby for a period of from an hour to an hour and a half. The effects become evident in a few minutes. If the tendency to hemorrhage returns later, the dose of salt is repeated, or potassium bromid substituted in the dose of 3 Gm. (45 grains), the bromid having, further, a sedative action. He does not hesitate to keep up this combined sodium chlorid and bromid treatment, giving in the most urgent cases from 20 to 30 Gm. (℥v to ℥j) of sodium chlorid, and from 12 to 15 Gm. (℥iij to ℥iv) of the bromid during the day. Any tendency to bromin intoxication is corrected by the sodium chlorid. In 9 other cases he administered the salt or bromid by intravenous injection as he did not wish to irritate the digestive tract or kidneys. This series includes seven patients with hemoptysis, and one each with hemorrhage from varices in esophagus or bladder or typhoid lesions in the bowel.

The writer has never witnessed any disagreeable by-effects from this treatment. The beneficial results were apparent in hemorrhage both in the lung and greater circulation. Hemophilia is a chronic defective condition for which a transient increase in coagulating power is of little avail. The hemophilic tendency is probably the result of defective production of thrombokinase, according to the author. R. von den Velden (Deutsche medizinische Wochenschrift, February 4, 1909; Journal American Medical Association, March 13, 1909).

INSOMNIA.

Whether any of the theories advanced as to sleep are accepted or not, the mechanism of sleep remains as yet problematic, according to the author. The theories do not explain with certainty why cerebral anemia or hyperemia exists, why the neurones become retracted, why toxins accumulate periodically in the tissues. Sleep may be normal or pathologic. To the latter belong narcolepsy, lethargy, somnambulism, night terrors and sleeping sickness. Insomnia may be total or partial.

The author considers the conditions in which insomnia occurs under the following groupings: Organic or functional disorders of the nervous system; psychoses; intoxications; infections; visceral diseases; general state of nutrition;

painful, general or local conditions; incidental causes.

In the treatment of insomnia, the writer forbids, under all circumstances, the taking of heavy meals at night. Sweets should be avoided, as should all stimulants, including tea and coffee; tobacco should be reduced to a minimum or abandoned; at any rate, there should be no smoking in the evening. Constipation must be remedied; a hot lukewarm bath of half an hour's duration before retiring is useful and may be repeated if necessary. Wrapping the patient in a sheet wetted in tepid water for one minute, or a cold wet towel placed on the neck, placing the feet in hot water for fifteen minutes, sometimes succeeds. Cases due to extreme sorrow or persistent mental preoccupation are often rebellious. In these cases some form of psychotherapeutics may be useful. Until these various measures have failed, medication should not be resorted to.

Among drugs 10 grains of sodium or strontium bromid every 2 hours may be repeated. Veronal 5 grains, with codein ⅛ grain every hour for two or three doses is a good hypnotic. In insomnia from painful conditions, removal of the cause is of course the first measure. Sometimes a state of exhaustion follows, resulting in wakefulness. A tepid bath of from 15 to 30 minutes' duration is recommended. A. Gordon (Therapeutic Gazette, February 15, 1909).

MENINGITIS, LEUCOCYTES IN.

The leucocytosis which is a constant feature of epidemic cerebrospinal meningitis has been studied by the writer, and he reaches the following conclusions: Cases of epidemic cerebrospinal meningitis are always accompanied by a leucocytosis, whether the attack is acute, abortive, mild, or chronic. The character of the leucocytosis is practically the same in all instances, both adults and children, and is the result mainly of an increase in the number of the polymorphonuclear cells. Nevertheless a lymphocytosis may be very occasionally observed in infants and young children. There is a relative decrease of the large mononuclear elements alike in fatal and nonfatal cases, though less marked in the chronic type. In acute cases there is sometimes an absolute decrease of the large mononuclear elements and occasionally total absence of those cells. In the chronic group, absolute decrease, like relative decrease, is little marked. Eosinophile corpuscles are always absent in acute fatal cases, though present in varying degree in all others. W. Dow (Lancet, March 20, 1909).

SKIN-GRAFTS, METHOD OF SPLINTING.

A coarse meshed net, such as is used for curtains, is used by the writer for keeping skin-grafts in position. The stiffening is washed out and the net is soaked in gutta percha 30 parts, chloroform 150 parts. It is sterilized by keeping in 1 to 1,000 solution of bichlorid of mercury. Of course, no hot material must come in contact with it at any time. After placing the skin-grafts, a piece of this web rather larger than the grafted area is pressed snugly down on it. Its advantages are that it splints the grafts without too much pressure, and is easy to apply and secure in place. It does not adhere to the grafts or to granulations. It allows the free escape of any secretions which may form, and thus prevents maceration. Any sort of dressing may be placed over it. The progress of the healing may be observed at any time without danger of displacing the grafts. J. S. Davis (Annals of Surgery, March, 1909).

TENOSYNOVITIS OF THE HAND.

Success in the treatment of tendon-sheath infections of the hand depends upon early accurate diagnosis, upon incisions so made as to drain the proper sites without involving uninfected areas, and upon careful after-treatment. Two types must be recognized, the fulminating and the subacute. The treatment will vary with the type. The most marked symptoms and signs are: localized excruciating pain over the course of the sheath, pain on extension, especially at the proximal end of the sheath, and characteristic position of the finger. Infection from the tendon-sheath of the index finger will most often extend to the proximal interphalangeal joint, thenar space, lumbrical spaces, and the surface at the proximal end of the sheath. From the middle finger it most often extends to the proximal interphalangeal joint, the lumbrical spaces, the surface at the proximal end, and the middle palmar space, although it may invade the thenar space. From the ring finger the extensions are the same, except that it always involves the middle palmar space, if extension takes place into the palm.

From the little finger, the most common sites of extension are to the proximal interphalangeal joint (not common), the lumbrical space, the middle palmar space, the surface at the proximal end of the sheath, and the ulnar bursa. From the ulnar bursa, it may extend to the middle palmar space, radial bursa, interosseous space below the flexor profundus, and the wrist-joint. From the sheath of the flexor longus pollicis to the thenar space, ulnar bursa, wrist-joint, and interosseous space above described.

Incisions are best made in the fingers, either upon one or both sides of the tendon-sheath over the length of the shaft of the middle and proximal phalanx, avoiding the joints, and into the proximal end of the sheaths or the lumbrical spaces to provide drainage there.

The ulnar bursa is best treated by splitting it throughout its length, cutting upon the ulnar side. The anterior annular ligament should generally be cut. This is commonly supplemented by incisions upon the radial and ulnar sides of the forearm above the wrist-joint, and on a level with the flexor surface of the bones—through and through drainage is then carried out under the flexor profundus tendons. An ulnar incision may be sufficient. If the pus has invaded the forearm, an ulnar incision is made at the middle of the forearm between the flexor carpi ulnaris and the flexor sublimis, or between the flexor carpi ulnaris and the ulna.

Incision of the flexor longus pollicis sheath is made from a finger-breadth below the anterior annular ligament to the end of the sheath. Opening may be made above the anterior annular ligament, the upper half of which may be cut, or drainage may be instituted above the wrist by the lateral incision mentioned under ulnar bursal infections.

In the after-treatment the Bier constrictor is used for twenty-four to forty-eight hours, hot moist dressings for two to four days, followed by dry dressings, hand being held in overextension by splint, daily manipulation of joints and muscles after immediate danger of systemic infection has ended. A. B. Kanavel (Surgery, Gynecology and Obstetrics, February, 1909).

American Medical Editors' Association.

The coming meeting of this Association, to be held at the Marlborough-Blenheim Hotel, Atlantic City, June 5th and 7th, celebrates its fortieth anniversary, and an unusual program has been prepared for the occasion.

It is expected that delegates from the foreign medical press will be present, and every medical editor should make an effort to meet with this society.

Atropine as a Hemostatic.

Dr. William F. Waugh is collecting material for a paper upon atropine as a hemostatic, and would be obliged to any of our readers who would send him notes of their experience with this remedy. He is particularly anxious to receive adverse reports, as well as those favoring the remedy. Any such material may be addressed to Dr. Waugh, 1424 East Ravenswood Park, Chicago, Ill.

Book Reviews

TEXT-BOOK OF OTOLOGY. For Physicians and Students. In 32 Lectures. By Fr. Bezold, M.D., Professor of Otology at the University of Munich, and Fr. Siebenmann, M.D., Professor of Otology at the University of Basle. Translated by J. Hollinger, M.D., of Chicago. Chicago: E. H. Colegrove Co., 1908.

To call this work a Text-book of Otology seems to be a mistake in identity. It is merely a series of clinical lectures on the ear, and the subjects treated are not done so in a manner which is characteristic of the usual text-book. The entire subject of otology is not covered, but merely those points which the authors thought would be of especial interest to physicians and students, for whom the book is intended.

The first nine lectures contain a discussion of the mode of examination and the consideration of general topics, while those following are devoted to special subjects. The anatomy of the temporal bone is early considered, and the study of the same is augmented by the presentation of wax models of the main spaces. The importance of a clear understanding of the various parts of this bone for the intelligent treatment of the various diseases is impressed upon the reader.

Statistics abound throughout, thereby making the work of some value to the aurist. It can hardly be recommended, however, to physicians and students, for their points of interest are usually diagnosis and treatment. A disregard for grammar seems to be quite evident throughout the book, and typographical errors are numerous—R. B. S.

SURGICAL MEMOIRS AND OTHER ESSAYS. By James G. Mumford, M.D., Instructor in Surgery, Harvard Medical School; Visiting Surgeon to the Massachusetts General Hospital; Fellow of the American Surgical Association, etc., etc. Illustrated. New York: Moffat, Yard & Company, 1908.

This book is composed of a series of surgical essays prepared by the author during the past decade. The opening one is a brief historical sketch of surgery as viewed through the works of different masters of various ages, including Hippocrates, the Father of Medicine and the originator of the "Oath" which has given the profession dignity, and which has revealed its lofty aims; Galen, our first great physiologist and the discoverer of the true function of the arteries; Versalius, a noted anatomist; Ambroise Paré, a surgeon of the sixteenth century who discarded the barbarous methods of using boiling oil and the like for hemostasis, and who instituted the ligature instead; Haller, a surgeon of prominence of the eighteenth century; and Hunter and Lister, two men of Scotland, who achieved greatness in surgery. American surgery is also considered under this heading, embodying a very interesting but brief sketch of some of the men who have figured intimately in the development of surgery in this country. This essay is found as the first chapter in Keen's "System of Surgery."

The paper on the "Teachings of the Old Surgeons" proves very interesting, and acquaints one with the methods of treatment in vogue at various periods of human existence. Interesting biographical sketches are also given of Sir Astley Cooper, Sir Benjamin Brodie, John Collins Warren and Jacob Bigelow.

"Boston Medicine One Hundred Years Ago" has for its main character the person of Dr. Samuel Howe, who was most energetic in his efforts to help others. His energies were especially devoted to the development and education of the blind.

The uncertainty of early medicine and its gradual development to the present-day standard is well shown in the paper on the "Studies in Aneurisms." Passing down through the centuries, it seems as though each great surgeon had his own peculiar definition and treatment for this malady, but it remained for one of our own surgeons, of the present generation, to devise a simple treatment which is decidedly radical in its performance and practically nil in its fatalities.

The remaining essays are on various subjects and include addresses to nurses and a short paper on "Ethics and Medical Education." The author's style of writing is interesting and entertaining, and the various subjects selected are such as to appeal to one from an educational, as well as a historical, standpoint.—R. B. S.

PSYCHOLOGICAL PRINCIPLES IN TREATMENT. By W. Langdon Brown, M.D., Cantab. F.R.C.P., Physician to Metropolitan Hospital, etc., etc. London: Ballière, Tindall & Cox, 1908.

Langdon Brown has given us in this little book of only 350 pages an excellent outline of the psychologic principles applied to the interpretation of certain problems of clinical medicine, and although it might with advantage be longer, it covers the field of: (1) organotherapy; (2) gastric disorders; (3) work of the pancreas; (4) uric acid; (5) oxaluria, phosphaturia, albuminuria; (6) glycosuria and diabetes; (7) acetonuria and acid intoxications; (8) intestinal intoxications; (9) irregular action of the heart; (10) vasomotor system in disease; (11) cyanosis; (12) the rôle of calcium in the body. There are few enough books pretending to give the student a symmetrical conception of functionation in relation to problems in disease. The only other one that we can immediately recall is that of Ludolf Krehl, of Straasburg, which has long enjoyed a well-merited vogue. This book of Brown's covers a rather different field, and the two form useful corollaries. There is no other subject on which the medical practitioner needs to refresh himself so frequently (at least annually) as on that of clinical physiology, and since it is really impossible to do this thoroughly from the larger text-books, such excellent interpretations as are afforded in this book of Langdon Brown's are to be very strongly recommended. It can be read in a couple of evenings, and these evenings will be among the best spent during the year.—J. M. T.

THE BODY AT WORK. A Treatise on the Principles of Physiology. By Alexander Hill, M.A., M.D., F.R.C.S.; sometime Master of Downing College, Cambridge. With 46 Illustrations. London: Edward Arnold, 1908.

Alexander Hill has given us the most complete review of the principles of physiology, bereft of the customary technicalities, that it has been our good fortune to read. The style is charming, vigorous, filled with homely illustrations and analogies, which assist in rendering the subject readily comprehensible. What is known is herein succinctly stated; what is inferential has been at most only alluded to; what is lacking has been pointed out—although this last is insufficient. So far as it goes, the book is a complete presentation of the outlines of physiology well worth repeated perusals. It does not attempt to deal with the treatment of disease, as does the book by Langdon Brown, but only gives occasional references to morbid phenomena. The chapter-headings are as follows: (1) Prolegomena; (2) Basis of Life; (3) Unit of Structure; (4) Fluids of the Body; (5) Internal Secretions; (6) Digestion; (7) Respiration; (8) Excretion; (9) Circulation; (10) Muscle; (11) Nervous System; (12) Smell and Taste; (13) Vision; (14) Hearing; (15) Skin-Sensations; (16) Voice and Speech. The illustrations are well suited for teaching, being vigorous outline drawings, entitled by the author "Blackboard Sketches," which convey a good notion of such points as require diagrams to make them clear. The chapter on the "Internal Secretions" is pretty good, notwithstanding the fact that the author betrays a complete ignorance of the researches of Sajous, who has amplified this subject and based upon it the exceedingly important inferences and clinical interpretations which place them at the foundation of clinical medicine.

J. M. T.

PARSIMONY IN NUTRITION. By Sir James Crichton-Brown, M.D., LL.D., F.R.S., Lord Chancellor's Visitor in Lunacy, London. London and New York: Funk & Wagnalls Co., 1909.

In this delightful little volume, which can be read in an hour, is presented what the author is pleased to regard as a complete refutation of the conclusions of Horace Fletcher and Professor Chittenden on low proteid diet or minimum alimentation. He presents a strong plea for adequate food, consistent with varying requirements; for instance, he says (page 3): "Physiologists and medical men of high authority are preaching not merely simplicity of diet, but a degree of abstemiousness that would hitherto have been regarded as dangerous." He sympathizes with the trend toward reduced dietaries, but fears that much harm may be received by those who may injudiciously attempt to practice it. In this he is undoubtedly correct. Nevertheless, the reviewer is of the opinion that neither of these two gentlemen, whom he so cheerfully attacks, would have the world starve to death, and they do act as important pioneers in showing how necessary it is for mankind to return to simpli-

fied dietaries in order to escape many troublesome effects of civilization, induced by over-eating. After reading both sides of the question one becomes vastly wiser. After all, the clinician is the one to say the final word in the specific instance.—J. M. T.

Hygiene for Nurses. By Isabel McIsaac, Author of "Primary Nursing Technique." New York: The Macmillan Company, 1908. Cloth, $1.25.

This excellent little work aims to secure for the young nurse those features of hygiene which are most practical and within the range of her daily work. The subjects treated are: Food: Composition, Varieties, Preservation, Adulteration; Air: Composition, Climate, Ventilation, Heating, Lighting; Soil: Water; Sewage: Garbage; Causes and Dissemination of Disease; Personal Hygiene; Household Hygiene; School Hygiene: Medical Inspection of Schools; Hygiene of Occupation: Employment of Women and Children; Disinfection: Quarantine. Although it pretends to be only a compilation, the author has contributed much of the subject-matter, and that in a clear, concise language, eminently calculated for the class of readers for which it is intended. This book is entitled to commendation and a large patronage.

Practice of Medicine for Nurses. A Text-book for Nurses and Students of Domestic Science, and a Hand-book for all Those Who Care for the Sick. By George Howard Hoxie, M.D., Professor of Internal Medicine, University of Kansas. With a chapter on the "Technic of Nursing," by Pearl L. Laptad, Principal of the Training School for Nurses, University of Kansas. 12mo of 248 Pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $1.50 net.

In order to carry out satisfactorily the instructions of the attending physician and to prove more useful during emergencies, nurses should be familiar with the elements of practice, although, as the author contends, they should not enter into the minutiæ of diagnosis or therapeutics. This book aims to meet this feature of the problem of nursing, and does so very satisfactorily, although some of the statements made that antitoxin "is taken from the blood of horses which have overcome diphtheria," and that in septicæmia the germs themselves "destroy the vital centers, not only by their toxins, but also by their bodily presence," would tend to convey erroneous ideas into a lay reader's mind. On the whole, however, the book is well gotten up, and a useful addition to the literature for nurses.

The Operations of General Practice. By Edred M. Corner, M.A., M.C., M.B. (Cantab.), B.Sc. (London), F.R.C.S. (England), Surgeon-in-Charge of Out-Patients at St. Thomas's Hospital, and to the Children's Hospital, Great Ormond Street; Consulting Surgeon to the Wood Green and Purley Hospitals; Formerly Erasmus Wilson Lecturer to the Royal College of Surgeons; and H. Irving Pinches, M.A., M.B., B.C. (Cantab.), M.R.S.C., L.R.C.P. (London), Clinical Assistant to the Children's Hospital, Great Ormond Street; Late House Surgeon and Obstetric House Physician to St. Thomas's Hospital. London: Henry Frowde, Oxford University Press; Hodder & Stoughton, Warwick Square, E. C., 1907.

The authors rightly hold that the education of the vast majority of medical men is very deficient in the practice and performance of the many small operations which lie so largely on the borderland between medicine and surgery. This they ascribe to the fact that but few students have the opportunity of doing practical post-graduate work in large clinics where such experience is obtainable. To in a measure compensate for this loss, they have published the present work, in which are presented in unusually clear, concise and practical style all of the multitude of technical points that one should be familiar with even to meet the needs of routine practice. The fact that the larger works omit precisely this class of information makes the book an invaluable one to the student and practitioner.

Text-book of Surgical Anatomy. By William Francis Campbell, M.D., Professor of Anatomy at the Long Island College Hospital. Octavo of 675 Pages, with 319 Original Illustrations. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $5.00 net; Half-morocco, $6.50 net.

As the author states, "Anatomic facts are only as they are isolated. Translated into their clinical values they are clothed with living interest." Although the word "anatomy" stands out prominently, therefore, the anatomic data presented are those only which have a practical bearing upon surgery or which are of special interest to the surgeon. A perusal of the work shows that this plan has been carried out so faithfully, and its practical side so well borne in mind all through its pages, that it is entitled to a higher place among the works of its kind than the author modestly claims for it. Our own opinion of it suggests that it should be regarded in the light of a work on scientific surgery, and we hope that in subsequent editions the author will gradually incorporate all surgical subjects in its pages, adding a volume if need be. The beauty of the illustrations contributes considerably to the value of the work, and the publishers are to be congratulated upon the manner in which they have accomplished their task. We sincerely hope the profession at large will give this work the cordial reception to which it is so eminently entitled.

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Clinical Lecture

ACNE INDURATA.

BY JOHN V. SHOEMAKER, M.D., LL.D.,
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GENTLEMEN: I have the pleasure this morning to show you a very common disease of the skin, comprising about 8 per cent. of all cutaneous affections.

This young woman, age 22 years, nativity America, gives a history of an eruption over her forehead and cheeks existing for over six months. She claims that small papules appear under the skin which are painful to the touch and feel hard, but which never have a tendency to suppurate.

The skin of her face is red, feels oily, and many comedoes co-exist. On close examination you can see small depressed scars which are undoubtedly the remains of pustular acne, which she had prior to this attack. You will also notice that the lesions present are deep seated and are as large as a pea. These hard papules come in crops, following close in succession.

Her previous personal history is negative as regards syphilis, and her habits are good. She is a domestic and works very hard, which undoubtedly consumes all her energy. Her tongue is coated, the conjunctivæ of her eyes are jaundiced, and she complains of eructations of gas and flatulence; apparently, she looks pale and anæmic.

Diagnosis.—This is undoubtedly a case of acne indurata, the diagnosis being based on the characteristic papules and nodules which are painful, hard, and have no tendency to suppurate. Also the lesions are deep seated, involving the subcutaneous tissue.

Many forms of acne are recognized and are named accordingly to predominating lesions present. In acne pustulosa the pustules vary in size from

a pin-head to a split pea, and in all stages of the development there may be associated papules, papulo-pustules, and frequently seborrhœa. The pustules usually form rapidly, contain a drop or two of pus, and will either terminate by absorption and dessication, or rupture and heal, leaving slight scars. In a mild form of the disease the eruption consists of pale-red papules with no tendency to suppurate; comedoes are present over the face, and especially over the forehead; this condition is known as acne papulosa. Drugs, such as the iodides and bromides, iron and external application of tar, often give rise to a form known as acne artificialis.

The diagnosis of the various forms of acne is often confounded with papular, papulo-pustular or tubercular syphilis, variola, eczema, and rosacea. The differential diagnostic points are:—

Acne.	*Papulo-Pustular Syphilis.*
1. Specific history negative.	1. Specific history positive.
2. Eruption limited to face as a rule.	2. Eruption general, and more prominent over the body.
3. Course is chronic and occurs at puberty.	3. Course acute and after puberty generally.
4. Lesions are inflammatory.	4. Lesions are new growths.
5. Lesions red.	5. Lesions ham-colored.

Acne.	*Variola.*
1. Constitutional symptoms absent.	1. Constitutional symptoms present.
2. Eruption papular, followed by pustulation.	2. Eruption papular, then vesicular, finally pustular and umbilicated.
3. Chills and fever absent.	3. Chills and fever precede eruption.

Papular and papulo-pustular eczema differs from acne in that the lesions in eczema are not necessarily located in the follicles, and scales and interpapular infiltration are usually observed, which are not present in the latter.

Rosacea, although frequently complicated with acne, differs from it in the local congestion, which primarily arises without particularly involving the sebaceous glands.

Pathology.—The acne papule is due to a retention of sebum in the hair-follicle and sebaceous gland, causing a perifolliculitis and a folliculitis. A hyperæmia with exudation and emigration of corpuscles may take place during the first stage, and which is sometimes followed by a destruction of the follicles and glands. Suppuration resulting either in induration, hypertrophy or atrophy of the involved tissues may follow if the inflammation is active. It is claimed by some authorities that the inflammation around the follicle is due to an abnormally developed epidermis lining of the follicles which thus sets up the irritation. The blood-vessels are always dilated and engorged, and surrounding the vessels is an intense cell-infiltration. The process usually terminates in suppuration, with or without destruction of the follicle.

Etiology.—This disease is most common at puberty due to the physiological changes which take place in the body, and continues until the system has passed through this period and has returned to a state of rest. Acne is found in both sexes, in all climes and in all nationalities. It is also attributed to debilitating conditions, disorders of organs or portions of the economy which have a reflex action on the face, such as gastro-intestinal disorders like dys-

pepsia and constipation, anæmia, uterine diseases, menstrual irregularities, and mental troubles also excite and aggravate it.

Treatment.—In this patient the treatment must largely be constitutional. Her blood is undoubtedly in a depraved condition, as is verified by the appearance of her mucous membranes. However, her gastro-intestinal canal is in a bad condition, and must first receive attention before we will place her on alterative treatment, hence we will prescribe for her the following combination:—

℞ Tincturæ nucis vomicæ ..... f℥ss.
Acidi hydrochlorici diluti ..... f℥vj.
Tincturæ gentianæ compositæ ..... q. s. ad f℥iij.
Misce. Signa. One teaspoonful in a little water a half hour after each meal.

After she has taken this mixture and her digestion is improved, we will give her a capsule containing:—

℞ Massæ ferri carbonatis ..... ℥j.
Arseni trioxidi ..... gr. ¾.
Aloini ..... gr. iij.
Extracti gentianæ ..... ℥j.
Misce. Fiant capsulæ no. xxx.
Signa. One capsule after each meal and at bedtime.

It is well to incise the deep-seated tubercles which are filled with retained sebum, and press out the contents.

Locally a stimulating ointment, containing:—

℞ Acidi salicylici ..... gr. xx.
Hydrastinæ hydrochloridi (colorless) ..... gr. iij.
Sulphuris ..... ℥ss.
Unguenti aquæ rosæ ..... ℥j.
Misce. Fiat unguentum.
Signa. Apply locally twice daily after the face has been thoroughly washed with hot water and tincture of green soap.

This ointment is probably as good a combination in these particular cases of acne as you may wish to employ. Of course, as the disease progresses in getting well, the local applications should be changed to less stimulating ointments.

Prognosis.—In this case the prognosis is favorable, but an early cure cannot be promised. Although acne is one of the most obstinate and relapsing of the skin affections, it can either be limited or cured by remedies, or it may terminate spontaneously after the individual has passed beyond the age of puberty, and the system is in a state of repose.

Original Articles

PREVENTIVE MEDICINE.

By A. J. BURKHOLDER, D.V.Sc., M.D.

The question may well be asked, Are we progressive? Do we profit by the large amount of specialized research work? This question can only be answered in the negative—observed by few—ignored by many.

Some years ago we were sufficiently liberal to believe that time would bring about a just appreciation of sanitary science, and that through the efforts of sanitarians the responsive cord would supply hearty co-operation on the part of the laity; that willingly the masses would accept, put into practice, and generously aid in the great fight that is being made to exterminate dangerous diseases. National, state and municipal regulations have accomplished much. Yet the work done has fallen far short for the want of approval and ready acceptance at the hands of those who feel that such restriction is simply persecution. After disease makes its appearance, curative means become imperative. At present it seems that more interest is taken in this direction by the average person than towards means of escape. Large sums of money are annually expended by the afflicted in search of health; but very little individually to prevent such disorders.

Can it be that we are struggling through that state, known in ancient history as "The Dark Age," or do the requirements of modern civilization so overtax the mind that education along these lines should receive no attention? Health is wealth. It is an endowment from which the possessor can draw dividends; it is the only resource, the only available asset upon which the majority are dependent. Freedom from disease of the body assures comparative freedom from disease of the mind, and instead of degenerates, monstrosities and moulds—living parasites—an increasing burden to the State, we should see a people strong in character, with a purpose in life; less crime, less need for prisons, asylums, sanitariums and almshouses.

An epidemic which would sweep away several hundred people in a few days would create a panic; yet through carelessness, ignorance, and criminal negligence, several thousand perish daily from causes within the power of man to prevent. As proof of this a glance at statistics is sufficient to convince the most skeptical, a review of which space will not admit.

Many of the most fatal diseases human flesh is heir to are also known to exist in the lower animals. Possibly we should say "the wild and domestic animals," for their intelligence is defined as unconscious reason—instinct—yet their instinct in many instances surpasses the conscious reason of the genus homo.

Among the most important transmissible diseases we will mention tuberculosis—very prevalent in cattle, swine and fowls, differing somewhat in the latter; anthrax, malignant pustules or wool-sorters' disease; glanders, rabies—called hydrophobia in man—diphtheria, a disease most fatal among poultry, calves, sheep, pigs and rabbits—dogs and cats are also susceptible. Many of these animals—especially pets—are capable of carrying the germ even when not actually affected. The mucous membrane of the nose and throat of the dog or cat furnishes an excellent harbor for the Klebs-Löffler bacillus. It is therefore necessary to search beyond the nursery for the origin, propagation and dissemination of these fatal maladies.

The most learned scientists of to-day recognize comparative pathology as an indispensable branch of education; essential to modern medical equipment. To the medical philosopher who desires to see his science stand on the broadest

basis, is here afforded abundant opportunity. By inoculation diseases can be produced, studied from stage of inception to termination, or terminated at any stage; thus affording the most scientific pathological instruction. It has been an occurrence of common observation, from the earliest times, that widespread pestilence in plants and in animals, have frequently either preceded, accompanied or followed closely on those visitations which caused mortality and mourning in the habitation of men.

Biology and pathology are so intimately related that comparative investigation is demanded. When this subject receives attention and is given its proper position in relation to diseases of man, many problems will be solved and the definite and positive results obtained will place human pathology upon a broader and more scientific basis.

To physiology, in its most comprehensive sense, and to a knowledge of the natural and normal development of animal and vegetable beings, we must look for future progress in pathology; while the means and instruments which advance physiology will simultaneously advance our knowledge regarding the nature of diseases—a sound knowledge of which can alone enable us to appreciate their causes, and arrange measures for the prevention of many of them, based on the great truths of science.

It appears that our most valuable discoveries, the result of the most intricate and painstaking research, have to battle their way through drastic criticism, and become hopelessly stranded for a time if questioned by one whose position only gives prestige to his opinion; while the original research worker, like the beautiful flower hidden away in some quiet nook, blooms unseen. Why is this true? Why should years and years elapse, the very summertime of discoveries, the golden opportunity to connect the missing links in the chain of etiology—before any recognition is evidenced? Jenner tested his discovery for 30 years before offering it to the public; and yet, even to-day, this great lifesaver is being bitterly opposed by those who have received the greatest benefit. Is the medical profession responsible for any part played against continuous progress in the field of comparative parasitology? Would not progress be materially aided by the united efforts, or at least not retarded, if allowed to pursue a natural course free from unwarranted obstacles?

ERYSIPELAS; ITS ETIOLOGY, SYMPTOMS, COMPLICATIONS, AND A NEW AND SUCCESSFUL METHOD OF EXTERNAL TREATMENT.

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In order to make known my new method of treating this disease, I think it well to present the subject in its entirety, so as to establish a thorough understanding of this very troublesome condition. Quite a number of my own ideas are radically different from those of accepted authorities, but mine, as well as theirs, are the result of actual experience, and the facts here presented are facts as I have found them in my own extensive experience.

Definition.—Erysipelas is an acute contagious and infectious disease, manifested by a number of different types of inflammation of the skin, but it is always caused by the streptococcus erysipelatis seu pyogenes.

Etiology.—Erysipelas is a most widespread disease, endemic in most communities, and at times epidemic. Here, most writers attribute epidemics to the particular season of the year. I think not, nor have I found that any particular season has the least to do with its epidemic form. I have seen epidemics at all seasons and have found no particular cause in the season, but have decided that it had simply become epidemic through its own power of contagion. I have seen one or two instances in which there were a large number of cases a great distance apart, but unless they were communicated through contagion, I can only attribute this state of affairs to the "will of the gods"; I can find no other reason for it.

This disease prevails more extensively in old, badly ventilated dwellings, stables, buildings, hospitals and institutions in which the sanitary conditions were defective. With the improved sanitation of recent years the disease has become less frequent. Erysipelas is both contagious and inoculable; but, except under special conditions the poison is not very virulent and does not seem to act at any great distance. It can be conveyed by a third person, and, this is the means by which I find an explanation for epidemics, and, I think is a more rational cause than any season of the year could possibly be. The poison attaches itself to furniture, bedding and the walls of rooms in which the patients have been confined.

The predisposition to the disease is very widespread, but the susceptibility is more especially marked in the case of persons with wounds or abrasions of the skin of any character. Women of recent confinement or persons who have just undergone surgical operations are particularly liable to it. A wound or abrasion, however, is not necessary, and in the so-called idiopathic form, although it may be difficult to say that there was not a slight abrasion about the nose or lips, in many cases there certainly is no observable destruction of the continuity of the skin.

Any disease or condition that tends to lower the resistive power of the individual will increase his susceptibility to this disease; chronic alcoholism and Bright's disease are regarded by some as special predisposing causes. I do not agree with them any more than that these conditions lower the vitality of the individual as above referred to.

It is also said that certain persons show a special susceptibility to erysipelas, and that it may recur in them repeatedly. I do not agree with this idea either, any more than that they are persons of weak resistive power, and if it recurs, it is due to either a new infection, this being due to the fact that they are living in the presence of the infection in their homes, established by their primary attack; or if this is not true, they probably have some other form of skin disease closely resembling erysipelas. I have had cases come to me from other physicians, who had diagnosed the disease as erysipelas. But the cases in view had not the slightest resemblance to it. Family predisposition is also regarded by some as a potent factor in its prevalence in some particular family. I also

disagree with this in fact. It may be more prevalent in some families, but the causes are due to the same things that apply to individuals, *i.e.*, either a diseased family, or the result of a primary establishment of the infection by the first case in this family in this particular dwelling that has never been removed; and habitual unsanitary surroundings. The specific cause is certainly due to causes from without and not from within the person or persons. It is not at all characteristic of this disease to harbor itself in a latent condition on a fertile field. There are certain symptoms and manifestations that accompany its entrance into the body; these symptoms in a more or less degree of severity accompany every distinct primary, secondary or subsequent case. A person cannot have this disease without these manifestations and vice versa. So that I have concluded that every case of erysipelas, regardless of the number of attacks the person has had, is a separate and distinct infection—an entirely separate case from any other he may have had, and has in his own body absolutely no connection whatever with any other attack or case.

Morbid Anatomy.—Erysipelas is a simple inflammation of the skin. In its uncomplicated forms there is seen, post mortem, little else other than inflammatory œdema of the skin. The cocci are found chiefly in the lymph-spaces and most abundantly in the area of spreading inflammation. In the uninvolved tissues beyond the inflamed margin, they are to be found in the lymph-spaces, and it is here that an active warfare goes on between the leucocytes and the cocci (phagocytosis). In the extensive and virulent forms of the disease there is usually suppuration. It is stated that the inflammation may pass inward from the scalp through the skull to the meninges.

The visceral complications of erysipelas are numerous and important. The majority of them are of a septic nature. Infarcts occur in the lungs, spleen and kidneys, and there may be the general evidence of pyæmic infection.

Some of the worst cases of malignant endocarditis are secondary to erysipelas. Septic pericarditis and pleuritis also occur. Pneumonia and acute nephritis are also met with.

Symptoms.—Erysipelas of the face and head is the form most commonly met with in general practice. The period of incubation varies in length from three to ten days.

The stage of invasion is often marked by a rigor, and followed by a rapid rise in pulse and temperature. When there is a local abrasion, the spot is slightly reddened; but if the disease is idiopathic, there is seen within a few hours slight redness over the bridge of the nose and on the cheeks. The swelling and tension of the skin increases and within twenty-four hours the external symptoms are well marked. The skin is smooth, tense, and œdematous. It looks red, feels hot, and the superficial layers of the epidermis may be lifted as small blebs. The patient complains of an unpleasant feeling of tension in the skin; the swelling rapidly increases; and during the second day the eyes are usually closed. The first affected parts gradually become pale and less swollen as the disease spreads. When it reaches the forehead it progresses as an advancing ridge, perfectly well defined and raised; and often, on palpation, hardened extensions can be felt beneath the skin which is not yet reddened.

Even in a case of moderate severity, the face is enormously swollen, the eyes are closed, the lips greatly œdematous, the ears thickened, the scalp is swollen, and the patient's features are quite unrecognizable. The formation of blebs is common on the eyelids, ears and forehead; the cervical lymph-glands are swollen, but are usually masked in the œdema of the neck; the temperature keeps high without marked remissions for four or five days, and defervescence takes place by crisis. The general condition of the patient varies much with his previous health. In old and debilitated persons, or the constitutionally weak, depression from the outset may be very great. Delirium is present, the tongue becomes dry, the pulse feeble, and there is a marked tendency to death from toxæmia. In the majority of cases, however, even with extensive lesions, the constitutional disturbance, considering the height of the fever range is slight. The mucous membrane of the mouth and throat may be swollen and reddened. The erysipelatous inflammation may extend to the larynx, but the severe œdema of this part that is seen occasionally is commonly due to the extension of the inflammation from without inward. There are cases in which the inflammation extends from the face to the neck, and over the chest, and may gradually migrate or wander over the greater part of the body (Erysipelas Migrans).

Small cutaneous abscesses are common about the cheeks and forehead and neck, and, beneath the scalp large collections of pus may accumulate. Suppuration seems to occur more frequently in some epidemics than in others.

Complications.—Meningitis is very rare. The cases in which death occurs with marked brain symptoms do not usually show post-morten meningeal infection. The delirium and coma are due to the fever, or to the toxæmia.

Pneumonia is an occasional complication. Ulcerative endocarditis and septicæmia are more common. Albuminuria is almost constant, more especially in the aged. True nephritis is occasionally seen.

The *diagnosis* rarely presents any difficulty. The mode of onset, the rapid rise of temperature, and the character of the local manifestations are distinctive.

Prognosis.—Healthy adults rarely die. The general mortality is small. In the new-born, when the disease attacks the umbilicus, it is most always fatal. In the aged and weak, erysipelas is always a serious affection, and death may result either from the intensity of the fever, or, more commonly, from toxæmia. The wandering or migratory erysipelas which has a more protracted course, may cause death from exhaustion.

Treatment.—For the internal treatment of erysipelas, the number of drugs advocated as having a specific action in this disease are legion; those that do have any specific beneficial action by internal effect on the germ itself do not exist; at least I have not found it in my experience, and I do not believe that anyone else can substantiate any such claims for any internal medication, other than the management that I shall speak of. I have found that the internal treatment of erysipelas simply resolves itself into the simple plan of treating any acute infection, accompanied with fever, rigors and pain, viz.: the administration of stimulating tonic remedies. Bowel asepsis is an important adjunct to any plan of internal medication. Any one of the suitable measures that

are accepted as good for the relief of pain and the promotion of sleep may be used as indicated in the individual case.

Complications must be carefully watched for and suitable treatment instituted at the earliest possible moment. This is doubly important in the very young, in the aged, and in the more severe cases.

As the general condition during a case of erysipelas is in my opinion gauged by the severity of the skin affection, its intensity and area, I have directed all my energies to controlling the local focus of infection. By doing this, and by the method that I present here, I have a record of nearly three hundred cases successfully treated from the very outset, and without having the pleasure of seeing the disease spread in the slightest from the area it occupied when I first saw the case. In my opinion the severity of the constitutional condition in this disease is controlled by the intensity, size of area, and the virulence of the infection, just as much as is in septicæmia. My experience at least has taught me the truth of this statement. The number of drugs and measures for the local treatment of erysipelas are as great, almost, as the number of drugs that can be spread on the bare skin. I have tried them all, both alone and in combination, and until I finally hunted out my own measure, I found no satisfaction at all. True, some cases would do nicely, others not quite so well, and others not at all. I found that the major portion of the infection was beneath the epidermis, and that some drugs were not absorbed at all, others only slightly, or were too caustic or painful in their action. While all this experimentation was going on, trying to find something that would destroy the infection promptly, without any pain or resulting scars, the infection was still traveling serenely on to new fields. I have most decidedly overcome this by the use of the following mixture:

℞ Acid carbolic	3 parts.
Spirits camphor	6 parts.
Alcohol	1 part.

The amount of the acid is large, it readily penetrates the entire skin, destroys the infection promptly, and leaves no scars, nor causes any pain, or very little smarting for an instant. The camphor prevents the burning affect of the acid and counteracts any that may be absorbed into the system. The alcohol does the same thing. But a larger percentage of alcohol destroys the acid action too greatly. This solution must be freely applied with a cotton sponge to the infected area, and fully an inch beyond the line of demarcation. In mild cases, once a day is often enough; in the more severe types two or three times a day. It can be used as often as desired in any case without the slightest fear of any untoward result or action of any kind. When first applied it causes an intense reddening of both the healthy and diseased skin; but this is not to be feared. When the infection is destroyed and healing begins, and as it advances, the diseased skin will peel off, leaving underneath a perfectly healthy, smooth normal skin. If the skin is uncomfortably hot or dry, I usually, after applying this solution, cover the infected area with gauze wrung out of cold sterile salt solution. This will be found very soothing to a large number of these patients.

This method has been perfectly satisfactory in my practice, covering nearly three hundred cases, and not once have I had a single failure or bad result, in any case, at any age from new-born babes to the aged.

THE CLAIMS OF PSYCHOLOGY AND ALLIED BRANCHES IN MODERN MEDICINE.

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Our aim in this brief article shall be only to embrace within its scope generalities or general conceptions with reference to disease states and by no means attempting to be statistical or specific. We hope, however, to be sufficiently lucid and descriptive as to portray our ideas to the reader along the lines which belong to the caption of this production.

We shall contend, in the outset, that most of the isms, false medical creeds, etc., which have sprung into existence in the past have largely done so by virtue of the failure of the regular medical profession to master the field or territory of its operations.

Our mistakes have afforded opportunity in many instances, for the birth, growth and development of all forms of irrational, illegitimate phases of practice within the realm of the healing art. Keeping this central idea and contention in mind, will be of advantage in grasping the idea, which in a large measure actuated the writer in preparing this article.

We are reminded that so often (certainly oftener than is generally believed) error becomes the natural and inevitable product of exaggerated truth. It is truth attenuated. Inductive and deductive philosophy, as regards medical or any other study, carry you to logical sequences when you remain in their respective realms, yet an advance beyond their rightful confines, reverses conclusions and confronts the student with all the possibilities of distorted, truth.

In our opinion this is greatly the result of misapplied and misunderstood medical thought of this and preceding generations.

This infliction of punishment, visited alike on patient and doctor, is none the less keen and poisonous, nor is there any commutation of sentence by virtue of intellectual unpreparedness upon the part of the medical world, for nature and natural law become relentless task-masters, and thus we find in the great field of medical practice the chaff and the tares amongst the golden fruitage of medical achievement.

Inefficiency in medicine, whether possible or not to avert, of necessity, when recognized by the public, becomes the parent of discontent, dissatisfaction, and at once initiates a search in other fields for relief.

Pain and suffering are seeking for the most speedy relief, as well as anxiety, fear and dread, and who can censure this attempt by their possessors? Again, may it be asked, who can criticise the profession of medicine, for we

believe its members, in a large measure, have practiced as best they could in their attempt to assuage pain, avert and cure disease.

We are not unmindful that the discovery of truth in medicine is a gradual evolution, it has been a slow process, and not yet can medicine and its practice justly claim to be scientific. Yet, while this is true and could not be otherwise, we must expect the illegitimate child of quackery, charlatanism and fraud to be born and to grow while we are yet in the process of development, and aiming at, even if we never achieve, absolute proficiency.

If the foregoing be true it should serve as a stimulus to us to grow with greater speed. If medical inefficiency and error have given birth to many forms and phases of quackery and illegitimate claims to cure disease, medical efficiency and medical truth should to that extent correct them.

We are thoroughly convinced that in our efforts to exterminate quackery in the legitimate practice of medicine, that which we have lost by inefficiency and error in the past, we can reclaim and redeem by knowing and practicing true medical science when attained, in the future. We further believe that knowledge, therefore, is to become the most potent remedy, if not the only one, in the hands of the medical profession with which to defeat the false isms and creeds with which this age so greatly abounds. How long and how often has the profession striven to eliminate quackery and the senseless isms by forms of legislation, and almost as often failed in attempts to legislate virtue into these pretenders and perpetrators of false teaching.

We seriously doubt the effectiveness of any means to eradicate and eliminate quackery adopted by the regular school of medicine other than a correction of its own errors. Incorrect thought and practice within the domain of any system of philosophy renders it insecure and commensurately vulnerable to attack by spurious and opposing systems.

The nebular hypothesis of the formation of our earth founded only on a theoretical basis, naturally invited other hypotheses and continued to do so, until the thought of concept ceased to be a theory, and became more or less a demonstrable fact.

False teaching of geology has through the past obtained commensurately with its lack of fixity of correct interpretation.

When a science or a system of thought becomes a science, and a demonstrable location is obtained in the realm of thought, such is given a fixity, a security and ceases, so long as it is thus recognized, to be molested by the attack of opposing philosophy.

Who is doing anything to-day to subvert our settled conception regarding the law of gravitation so long ago established by Newton? It is recognized as a fixed principle in the domain of scientific thought, and thus has ceased to be a mere theory, and to-day securely rests undisturbed.

As in the natural sciences, likewise in the great study of medicine, we shall always be disturbed by false teachers and teaching, till we achieve a fixity of concept and practice and a unity of action as regards the great principles of truth underlying our profession.

The sooner we ascertain and accept what is true in medicine, the sooner

can we hope for the extermination and extinction of all forms of false and pernicious medical teaching, and practice substituting scientific for the now largely theoretical aspect of medical thought affords us the surest means towards the accomplishment of this end. Dowieism, Eddyism, the Emmanuel Movement, etc., perhaps all possess a semblance of truth in their claims; but if so, it is more than probable that such was abstracted from the realm of legitimate medicine and so attenuated as to have transformed sense into nonsense—truth into error.

There are only two phases of medical inadequacy to which we can briefly allude, viz., slowness to receive psychological principles as aids to the practice of the healing art, and a disinclination with many to educate and enlighten the public.

Man is mind and matter; psychology and physiology inseparably associated, and therefore must be inseparably treated when diseased.

With many even to-day to acknowledge psychic influence over matter, smacks of effeminacy and error. To us, however, ignorance in relation to this, or reluctance to accept it has been of telling influence towards inhibiting progress and afforded to a great degree an opportunity for the advent of false teaching. We have been slow to take advantage of the aids found in the psychic precincts.

Our tardiness to thus detect and utilize the hitherto largely unused forces of mind, manifestly gave birth to the so-called Christian Science movement of Mrs. Eddy. Truly can it be said in this application that the nonsense of Christian Science is a stolen truth attenuated; error as before said has become exaggerated truth.

The doctor, to-day, who treats disease unaided by the mind of his patient, is largely bereft of medical fitness and should earn support in some other calling. Treating the sick, without (at least a modicum of) respect to the play and sway of psychology, is happily to-day largely history.

By whatever name you call them, thought, feeling, volition and the will of your patient, demand recognition at your hands, and none save the failures in medicine, the intellectual myopes, turn a deaf ear to this appeal. I dare say in many instances the behavior of the doctor in the presence of the sick, the mental impression he makes, the confidence he inspires, are first in importance in the cure. Truly the renaissance in medicine had its advent in the adoption by a large part of the profession of psychological influence in the treatment of disease.

It has been said that error is often exaggerated truth. We ask, only for sake of argument, what is hypnotism save an extension of faith, confidence, belief, trust reposed in the doctor by his every patient? What is the hope and the optimism of the so-called Christian Science movement, save an extension of that which thrills the heart of every patient on the advent of his trusted medical "Adviser" to his presence?

What is the Emmanuel Movement save an effort, futile though it proves to be, to associate mind and matter in the cure of disease? And so with all forms of modern false movements. They have crept into the precincts of our

honored territory, partly welcomed and bidden by our ignorance and taken from us kernels of truth, and founded upon them a series of false and damaging isms and creeds.

We think, not to reflect criticism however, that an inhibiting force to the speedy recognition of this truth is found in many illy-informed representatives of the surgical world. Men who practice the art of surgery, rather than the science and the art.

Ignorant and illiterate members entering the profession with merely a wheel and crank idea of its practice, can scarcely hope to be changed. This class, becoming teachers in medical colleges, has much to do in framing the mind of those they purport to teach in this mechanical mould and are surely making of many students "Therapeutic Nihilists." In modern times so often do we find in all countries the prevalence of therapeutic nihilism: men in surgery who thus teach and practice are ignorant of its grander half—its science, or rather its approach to science.

Taking a tissue out of the human body, the technic of doing it, is surgical are; the when and the what to thus extirpate, become the science of surgery.

It follows in logical sequence that a man who says there is little efficacy in drugs, would more strongly contend that there is none in the realm of mental action upon the part of the afflicted. So let us move to convert (if possible) these purely mechanical representatives and we shall go far towards enthroning in medical practice mental influence, let it be much or little.

We shall look more hopefully in this direction in the future, owing to a more extended literary requisite or prerequisite to the study of medicine.

A thought or two with reference to the education of the laity. Many excellent men in medical practice desire public ignorance and do everything possible to darken and mystify the path of the layman. Fearful as they are of an encroachment on sacred territory, and a mortal apprehension of being restricted in their practice, commensurate with public enlightenment. In this we are not intending to instruct this class of medical parasites, for they need too much for a short essay to impart, even had we the capacity to do so. In one of our local societies ten years ago a gentleman advocated educating the public, particularly along the lines of hygiene and physiology and chemistry, and he was severely ridiculed.

We had not yet escaped from the limbo of the purely mechanical treatment of diseases; but to-day, thanks to scientific growth, the large majority of medical men, certainly the educated part, gladly welcome the aid of mind in its intimate and inseparable relation to matter. We shall not attempt to prove by examples this relation, though numerous and overwhelmingly convincing. By this we mean the rightful use of mind—*not* the aspects as practiced by its frenzied devotees as represented by Mrs. Eddy, Dr. Wooster, and those who practice the laying on of hands, the intercession of prayer, hypnotism, etc. To a limited degree these aids of the mind have been utilized for many years in the past, but education, scientific achievement, development of the profession so conspicuous in recent years, have served to greatly add to the legitimate forces of mind possessed by the educated layman. A power of this kind exer-

cised by the modern physician finds such a universal response and we might say demand upon the part of the modern patient, as fully verifies to the logical mind the validity of the contention that mind and matter are inseparably associated in structure and in function.

A moment's consideration on the side of the patient. What effect would enlightenment in some of the collateral branches of medicine have on the general public? The answer to this query would settle the matter of the expediency or otherwise of using our efforts in this direction. If a layman understood the possible dangers of diphtheria attacking his child, with a capacity of early detecting it, would he invoke medical aid sooner or later by virtue of such competency?

If a woman with a lump in her breast suspected it, in its early history, to be cancerous, and knew the dangers of surgical delay, would she sooner or later invoke the aid of surgery?

Were a young man or woman competent to detect the early evidences of a pulmonary tubercular process, and knew the dangers in its natural wake, would he or she the sooner or later seek all security possible of climate, etc., to arrest its spread?

As in these few elementary examples, so in the whole series of diseases to which we are victims. If this, therefore, be a logical conclusion, it would make of your patient an ally to you in the attempted cure of his disability. In our opinion the enlightenment of the public and of your patient along certain lines of the allied sciences to the practice of medicine, as hygiene, chemistry, physiology and psychology could but redound to the interest of the modern physician, commercially, morally and scientifically.

We are absolutely convinced that the choosing of the regular physician by the public will be more and more fully secured as it becomes educated, thus affording the masses an increasing capacity of differentiation between the good and the vicious, of those who purport to treat the sick. A homely illustration comes to us, which will well illustrate our position. Given a mixed pile of oranges, consisting of the good, bad and indifferent ones—a power or capacity of differentiation is required in the choosing of those that are best; a lack of this would annul any attempt at classification. Just so in the choosing of a physician. The people must possess this differentiating capacity and this must be acquired and can only be obtained as a result of education. If this elemental reasoning is not conclusive we cannot make it so. The old and false "dictum" of Barnum, that people love to be humbugged is in no sense true and has done great harm in its influence. The people do not want to be humbugged and it is ignorance on their part when they are, and ignorance on our part in that we think so. Sometimes the most cultured people are the most ignorant on medical lines and become the most yielding victims to the pretenses of quackery.

Any sane man with a pain wants to get rid of it in the most speedy and effectual manner.

In conclusion, we would urge on medical colleges to lay greater stress on the study of psychology, either by literary schools, universities, etc., else give

it rank in the curricula of medical schools themselves. Hitherto its study has been woefully neglected and hence its practice by physicians equally so.

Your mind should be bereft of the thought that a recognition of mental forces and an invoking of their aid in medical practice is in any way associated with infinitesimal dosage of drugs, or an admission of inadequacy of medical effort, or that it is in any way allied to religious prayer, laying on of hands, faith cures, hypnotism, the social doctrine, Eddyism, the Emmanuel Movement, or any of the other claims of fancied delusions, but rather an evidence of thought growth, development and a proper conception of man as he stands related to his doctor.

Whenever the regular profession of medicine impresses a responsive, educated public that it has the best methods of alleviating suffering, curing diseases, and that primarily, it is after this result, rather than the dollar in the pocket of its patients, then the true renaissance of medical ambition will be upon us and it will require no force, no coercion, no legal enactment (except to restrain vice), no fighting of opposing forces to obtain public patronage.

In our opinion, therefore, there should be a more intimate knowledge of psychology and a more thorough practice of it, along sensible lines, entirely bereft of insane interpretations of it; a more thoroughly educated public along the lines of the allied sciences to medicine, as chemistry, physiology and hygiene; and the physician to practice primarily the science of medicine, instead of the science of money-making—then will our contention of being the best be reasonable, and our fight for it more fully assured of victory.

No, we cannot explain any of the phenomena mirrored by man in the living state, purely on physical territory, and these physical processes dissociated from mentality would be as mystifying to comprehend as the occult springs of mind itself. The multiplied millions of cells of man's physical organism must be viewed as a great sensitized plate, impressionable and impressed, though mysteriously so, to and by every wave and ripple of psychic power and energy. This is true in health—doubly so in disease. Can you tell us how food nourishes and how waste is separated and thrown off by the emunctory organs? You only know a few things about this largely hidden course food pursues in the economy subjected to processes of selection and rejection, and half of pretended knowledge is uncertain theory. So in every act and movement of living structure, most all is mysterious. So do not disclaim the connection and relation of mind and matter in the treatment of disease, because such is to you inexplicable, mysterious. One is very apt to negative things he does not understand. Particularly should this be borne in mind as regards the influence of mind over matter and when practically nothing in man, no process of construction and of destruction of his tissues, can be accounted for or explained solely on a material basis.

You speak of the state of idiocy, and in relating its history, always speak of this mental deficiency as having an important bearing on the case and the destiny of the case. This is a practical admission that the mental deficiency in point in a measure determines the destiny of the disease, at least an influence is thus exercised—just so in all phases of human life, we ever speak of and treat man in the associated sense of mind and matter.

In fact, mind in essence is the man; the psychology of man is the man himself. He manifests himself in physiology and pathology. Mind governs, guides as master, the machine in which it dwells. The exhibition of the phrases of mental thought and action are pictured to us as phenomena by the physical organism. Man's physiology and his pathology in a physical sense, become the servants of his mind and serve only as mediums of expression. In the repair, therefore, of the machine when broken, always consult the hand that is to use it and control it. Let us conceive that in the ultimate analysis, the eye does not see, the tongue does not taste, the finger does not touch, nor does the ear hear. These different organs serve only as reporters and only convey impressions to the mind or the realm of consciousness, whatever and wherever that is.

Were it purely physical, a drunken man or an insane one would be responsive to all these sense stimuli or impressions.

So let us always recognize psychology in the treatment of disease as an indispensable aid in our efforts to restore health.

A unicist would say that mind is a product of matter. This is yet the theory of the materialist. We can't conceive the possibility of this any more than we could argue that the house in which you dwell is you. It is unthinkable. It is no more reasonable to contend that a physical cell could, limited by the properties of matter, cohesion, adhesion, extension, ponderability, etc., give birth to mental properties such as thought, feeling, will, volition, etc., as that the house could, in which you live. We had as soon think that an apple tree could bear and produce these psychical elements as to think a cell in the brain could do so.

To us it is much more reasonable to reverse this and contend that the body is the product of the mind (though we do not claim this to be so). We had rather conclude (on the plane of logic, that a stream can rise no higher than its source), that a superior could produce an inferior, rather than that an inferior could produce a superior.

We only cite these to more strongly fortify our position—that the most successful care of the sick cannot be achieved by a divorcement of man's psychology and his physiopathology.

ACUTE RETENTION OF URINE FROM IMPACTION OF A PHOSPHATIC CALCULUS IN THE PENILE URETHRA; AND A FATAL CASE OF BERIBERI.*

By Captain FRANK T. WOODBURY, M.C., U. S. Army.

ACUTE RETENTION OF URINE FROM IMPACTION OF A PHOSPHATIC CALCULUS IN THE PENILE URETHRA.

While stationed at Panay, Philippine Islands, the following notes were made, one of an unusual operative case, and the other a medical case, which seem worthy of publication. A. M., a Visayan of the Island of Guimaras,

* Publication approved by Surgeon-general's Office, Washington, D. C.

aged 35, presented himself for treatment about 4.00 P. M. on October 27, 1907. He complained of having had difficulty of urination, intermittent in type, for several months. During the previous week it had been almost impossible to pass urine, except by straining and he was suffering continually with an agony of desire to empty his bladder.

At the time of the onset of this urgent symptom he noticed a small lump in the perineum which gradually passed forward until within two inches and a half of the meatus where it could then be readily felt. It was apparently imbedded tightly in the urethra.

Through a misunderstanding he went to his home to get some clean clothing and did not return to the Hospital until the following morning when he appeared very weak with cold clammy skin, a rapid heart and a facial expression of much agony.

He was immediately placed upon the operating table and the urethra was flooded with normal salt solution, then with 4 per cent. cocaine and finally with sterilized olive oil. An attempt to dilate the urethra with sounds and to deliver the calculus by external expression failed; as did also attempts to withdraw or crush it by means of long armed nasal forceps through the urethra.

The patient was given ether, and a median external urethrotomy was done over the foreign body. The stone was very irregular and jagged, and was firmly imbedded in the urethral mucosa in an adventitious pouch, from which it was removed piece-meal though only by much force and manipulation. Several smaller concretions were also found imbedded and were removed.

The wound was washed with hot normal salt solution, a metal catheter was then passed through the meatus into the bladder, which had emptied itself through the wound. Using the catheter as a sound, it was impossible to detect other calculi in the bladder. The urethra was closed over the catheter by two fine silk sutures prepared in tincture of iodine. The outside wound, which passed partly through the raphe of the scrotum, was packed with gauze soaked in alcohol, and a large gauze-cotton pad applied.

The patient made a steady recovery; the metal catheter was replaced by a rubber one November 10th and the patient discharged November 23d.

Hexamenthylenamine (Urotropin) 650 milligrams was administered four times a day for a week, a light diet maintained, and magnesium sulphate given to keep the bowels open. The temperature was very irregular, between normal and 101° F. for three days when it became finally normal. The urine escaped in part through the wound until the eighth day and the presence of the catheter caused at first frequent emptying of the bladder. The fragments of the stone were very sharp, irregular and phosphatic in character; its full size when in the urethra was about that of a very small hazelnut.

REPORT OF A CASE OF ACUTE PERNICIOUS BERIBERI IN A WHITE MAN.

W. B., a sergeant of Infantry. Age 41 $\frac{9}{12}$ years was admitted to the Camp Hospital, October 8, 1907. His family history was negative. He had had the usual diseases of childhood and was addicted to the steady use of alcoholic stimulants, though rarely intoxicated. He had suffered from an annoying alco-

holic gastritis for a number of years with poor and precarious appetite and more or less discomfort in the stomach after eating.

His present attack apparently began about Oct. 1st with entire loss of appetite and acute severe pains in the epigastrium, the bowels being very irregular.

The patient when admitted to the hospital complained of general muscular weakness and bodily depression with no appetite, pains in the epigastrium extending downward as far as the navel, some vomiting of a bilious, very sour smelling liquid in small quantities, and irregular bowel movements.

Physical Signs.—There was general muscular weakness particularly in the legs, locomotion was uncertain and swaying; gait somewhat spastic, the legs soon became tired after a walk up the ward. The grip in both hands and the biceps resistance were good.

The station was swaying, knee-jerks lessened with no incoördination of leg movement when the patient lay down. No loss of sensation, and no area of hyperesthesia of the surface of the body could be demonstrated. The patient seemed apathetic and in a dream state; but there was no other mental disturbance. The mind was clear and questions were answered promptly and intelligently. There was no paralysis of the organs of speech or special senses.

The temperature and respiration were normal; pulse 110, irregular and weak; but no organic lesion of the heart was apparent.

The patient was put to bed and given a course of calomel and soda bicarbonate. The bowels seemed obstinately constipated and enemata of soap-suds were needed to effect a movement. Triple elixir of iron, quinine and strychnine was administered as a tonic.

Examination of the blood showed polyneuclear-leucocytes, 66.87 per cent.; lymphocytes, 26.25 per cent.; myelocytes, 3.18 per cent.; eosinophiles, 3.8 per cent.; total leucocytosis, 6,000.

No malarial parasites were found. The urine and feces were apparently normal. The patient was tried on various diets none of which proved especially suitable. Bicarbonate of soda, 650 mg., was given every four hours. The pain in the stomach abated in severity and on the 19th the stomach was washed out. The contents were without interest. The patient continued to grow weaker and more apathetic. The knee-jerks disappeared about the 25th and internal ophthalmoplegia, myosis and lack of response to light and accommodation appeared. The patient could not read ordinary or large sized newspaper print without a magnifying glass. Iodide of mercury, 16 mg., was given *t. i. d.* Oct. 27th and replaced by Lugols' solution 650 mg. Oct. 28th. The patient could not stand alone on 27th and seemed very apathetic, depressed and weak. There was some emaciation though not marked. The grip in both hands was good but both legs were completely paralyzed. The mind remained clear, there were no anæsthesias or hyperæsthesias of the skin. The special senses were unimpaired except for loss of accommodation in both eyes. The heart remained rapid and irregular 110-120. There was much tenderness on pressure in the epigastrium. All the other organs were apparently normal. Heart stimulants were administered.

The patient died at 1.10 P. M. Oct. 29, 1907 of acute heart failure; diagnosis—acute pernicious beriberi.

Findings at Autopsy.—Left lobe of the liver, rudimentary; stomach, enlarged, mucosa somewhat inflamed; transverse colon, undeveloped with lumen admitting two fingers only.

Brain, thoracic and abdominal organs, save as above noted, apparently normal.

In the absence of an epidemic this case was extremely puzzling and it was not until the autopsy that the diagnosis seemed at all clear.

The source of this case can be traced to the native village, of which this soldier was a more or less constant visitor, which was in the vicinity of the post and where chronic tropical diseases are at all times endemic and latent in the majority of the native inhabitants.

Editorial

VIVISECTION AND ITS RESULTS.

At the present time medicine is not merely an art: it is no longer practiced by simple rules and suppositions. It has become an exact science in many of its branches, and definite knowledge has supplanted empirical facts and fancies. The means by which this change has been accomplished has been mainly through vivisection; it is by experiment alone that we are able to distinguish between fact and fancy, between ideas and suggestions that arise in the minds of the investigators and the realities in the apparent physiologic functions. It is therefore essential that vivisection is necessary in the teaching of the medical sciences. We could not understand the circulation of the blood if our only resource was the study of dead bodies. We could never determine the functions or office of organs if we resorted to the use of dead bodies alone.

The principal object of science is to be useful to mankind, and when we know the laws of nature we can then alleviate the miseries of our existence. The innumerable and mysterious facts of the medium in which we live are subject to fixed laws that are only imperfectly known, and our efforts should be to elucidate these laws by investigating the grand laws of nature. Prior to vivisection supposition had been the basis of medicine. These suppositions had constantly misled men as to the cause, nature, and treatment of disease, and so long as they were no longer subjected to the test of experiment, one supposition succeeded another only to be itself replaced by another no less delusive and fanciful than the first. To this is attributed the tardiness in the progress of medicine. The modern advance of our medical knowledge has been mainly due to vivisection, and thus is reaching a point of exactitude which, as time goes on, will make the grandest and most beneficial of all sciences.

The principal object in treating disease is not symptomatic treatment, but the treatment of the cause. Our chief aim is to localize the cause and seat of the disease; also the action of the remedies to be employed, and in this manner we are able to treat the disease with certainty and not on supposition as was prior to vivisection. If it were in our power to localize the cause and seat of the diseases with certainty, and know definitely the action of our remedies, we would possess a power to arrest and prevent disease which would render death by old age the usual, instead of, as at present, the exceptional premature termination of the many human lives. Our exact knowledge is obtained by experiment—that is, by experiment upon animals. The anatomical examination of organs teaches us very little concerning their function. How could we understand the circulation of the blood if our only resource was the study of the heart, arteries, and veins? What idea would be conveyed to our minds concerning the functions of the brain from a mere description of the brain? We could never determine the function or office of the various lobes and convolutions just by noting the complexity of their structure. It is by these experiments upon the living animals that we are studying and working out the nature of the morbid processes which occur in the various diseases and the conditions which give rise to them. For example, we study a disease by inoculating the microörganism from the afflicted and unfortunate individual to a few animals, and in this manner we are enabled to preserve the lives of thousands of human beings and thus avert the anguish which their untimely death would cause to their relatives. In order to prevent the suffering, unmerciful ravages of disease, and death of human beings, it is absolutely necessary to sacrifice a few animals and not allow ourselves for the momentary gratification of our human feelings which would lead us to avoid the sacrifice of the various experimental animals, and thus neglect the acquirement of knowledge which would be productive of lasting widespread benefit to mankind. Without experiments and vivisection we can have no means whereby we may prevent and cure disease. It is only by an accurate knowledge of the cause of the disease that we can hope to prevent its occurrence, and it is only by an accurate knowledge of its nature and seat and of the action of the drugs that we can hope to use it when it is present. The science of medicine can only be advanced by the performance of experiments—that is, by vivisection, and the only question to be decided is, Are these experiments to be performed upon animals or upon human beings? The idea of inflicting pain upon innocent animals is naturally repugnant to every well regulated mind; but, however, the thought that they are working out and revealing the mysteries that cause disease ought to be one of the greatest pleasures that tender-hearted and sensitive persons can experience. However, if we exercise pity and compassion for these few animals, we would pay dearly for it by allowing a much greater amount of suffering to be wrought upon thousands of individuals due to our lack of knowledge.

An anti-vivisectionist exhibition took place in this city a few days ago, where they portrayed vivid pictures and showed the laity the hard and cruel-hearted (?) investigators inflicting untold suffering upon experimental animals

in a physiological laboratory. The laity is thus misled by these graphic descriptions and by the literature distributed by those in attendance. Many have joined in the agitation and consequent legislation against vivisection. They are not aware that the pain inflicted in a vivisection experiment, except in very rare instances, is done under painless conditions, and that the pain is far exceeded both in intensity and duration by the suffering of many human beings in the course of a mortal disease. They seem to be ignorant of the fact that this is done for the development of the medical science and their own personal welfare.

We physicians are inspired by humane sentiments, by love not only for the present generation, but also for the future as well. The laity take little account and consideration of the martyrs to our science. They do not consider the tedious weeks and months spent in the nauseating dissecting rooms, in hospitals surrounded by moaning and shrieking individuals. We love the science and the grand results that it is destined to give, and we hope that the time will come when our brethren will be relieved of a great deal of suffering which we are unable to relieve at the present time. If we look back at some of the achievements of vivisection we find that to vivisection is due the discovery of the circulation of the blood upon which all surgery and medicine rest. In almost all the recent improvements in the various surgical operations nearly every step has been dependent upon the experience gained in experiments upon animals. Why then should so much account be taken of a few animals in the face of the thousands of lives that we have saved from suffering and death? To interdict this practice of vivisection would be to slay the science of physiology and thus retard the progress of the medical science.

Every winter hundreds of animals die of cold, hunger, and as a result of disease. Many housewives, in order to rid their houses of the rats and mice, poison them with phosphorus or arsenic, and in this manner bring untold misery and more suffering than these animals would suffer at the hands of a vivisectionist. Then why should our earnest investigators be unjustly abused in their endeavors to gain knowledge for the purpose of alleviating pain and curing disease? We can readily see that experiments are the necessary instruments of research in order that we may bring our ideas and suppositions in accordance with facts and do away with hypotheses.

Materia Medica and Therapeutics

ALLOPLASTIC SUBSTITUTION OF THE DURA.

Dr. Hanel reports the results of the employment of animal membranes as a substitute for the dura. The employment of animal membranes was recommended by Morris, and the author performed experiments in this direction upon dogs; making use of the so-called fish-bladder condoms, which are prepared from sheep's intestine and treated according to Hofmeister's method of catgut-

sterilization. The experiments served to show that the membranes underwent softening as soon as three days later. At the end of seven days, a cellular tissue, rich in blood-vessels could be seen to enter the softened membrane by way of the adjacent dura and neighboring muscle-tissue. No substitution was noted proceeding from the pia, when this had not been injured during the operation. In the further course, the entire membrane became replaced by granulation tissue, rapidly followed by transformation into permanent connective tissue. The membrane again becomes considerably diminished in thickness. It results that the condom-membrane heals in, and, while it undergoes absorption itself, yields the basis for the formation of a dura-like membrane. At any rate, one or two months later there existed a membrane solidly adherent to the dura, and presenting no adhesions of any kind with the brain. (Centralblatt f. Chirurgie, No. 5, 1909.)

AURAL DIAGNOSIS.

G. E. Shambaugh, Chicago, describes the anatomy and physiology of the auricular apparatus and the methods of examining it for diagnostic purposes. He lays down the following propositions as established: "First, if the semicircular canals are normal and the ear is syringed with cold water, vertigo will result and there will be set up a nystagmus increased by directing the eyes toward the opposite side. If the ear is syringed with warm water the same symptoms will occur, but the nystagmus will be toward the same side. Second, should there exist an irritation of the endings of the vestibular nerve in the labyrinth, such as may be occasioned by a circumscribed suppuration in the labyrinth, there will be spontaneous nystagmus directed toward the same side. Syringing the ear with cold water will produce a positive reaction. Third, if there occurs a sudden destruction of endings of the vestibular nerve, such as would be occasioned by a diffuse suppuration in the labyrinth, there will be set up a spontaneous nystagmus directed toward the opposite side, but lasting only from a few days to several weeks. This nystagmus has its origin in the opposite normal ear. Syringing the affected ear with hot and cold water produces no response. Fourth, in case of long-standing destruction of the nerve endings in the vestibular nerve, such as occurs in chronic diffuse labyrinth suppuration, there will be no spontaneous nystagmus and no reaction can be obtained by syringing the ear with hot or cold water. Fifth, in case of cerebellar disease, such as cerebellar tumor, cerebellar abscess or a meningitis in this locality, there will occur a spontaneous nystagmus directed toward the affected side." Hence with pronounced rotating nystagmus and normal tympanum the presence of a cerebellar tumor may be suspected. On the other hand, the rotating nystagmus in a case of suppurative otitis media without fever but with severe deafness and nystagmus toward the affected side, while the syringing with cold water producing no response suggests a cerebellar abscess. The complete destruction of the hearing in the affected ear would indicate a probable diffuse suppuration of the labyrinth. The failure to get caloric response on syringing points to destruction of end organs in the semicircular canals. The only spontaneous nystagmus caused by this would be directed toward the opposite side. The lack of rise of temperature in most cases would exclude a meningitis, while a cerebellar abscess pressing on the vestibular nerve could produce a spon-

taneous rotating nystagmus which would be increased by directing the eyes to the opposite side. (Journal of the American Medical Association, April 3.)

INTOXICATION WITH CHLOROFORM, TREATMENT OF.

Dr. K. Wirth reports two cases of intoxication with chloroform. His first patient was a young man who drank 150 Gm. (5 ounces) of pure chloroform with suicidal intent. The patient died in twenty-two hours without recovering consciousness notwithstanding rinsing of the stomach with water and milk, saline infusion, etc. The fact that chloroform does not dissolve readily in water and sinks to the bottom, suggested that better results might be obtained by rinsing the stomach with oil, and he soon had occasion to verify this assumption. A man of 43 drank from 80 to 90 Gm. of chloroform as a cure for sleeplessness, and Wirth rinsed out the stomach with warm sesame oil, as this was first at hand, and then rinsed with olive oil until there was no odor of chloroform in the stomach content. He thus used up 7,000 c.c. of oil, the lavage continued for one and a half hours. On account of asphyxia, artificial respiration had to be done for a time, interrupting the lavage. Venesection, withdrawing 300 c.c. of blood was followed by saline infusion, and in 24 hours the patient was himself again except for a slight headache. He did not seem to suffer from the usual chloroform irritation of the digestive tract. The favorable termination in this case is undoubtedly to be ascribed, Wirth declares, to the thorough washing out of the stomach with the warm oil until the last trace of chloroform had been removed. (Wiener klinische, Wochenschrift, January 7, 1909.)

IODIN IN SURGICAL TUBERCULOSIS.

Dr. W. A. Tatchell says that tuberculosis of the joints, bones, glands and skin, is the most common disease in China and highly recommends the application of iodin liniment after operative treatment. After operating or scraping, the cavity is thoroughly swabbed with iodin ointment. A piece of absorbent cotton twisted around the end of a probe forms a good swab, and can be graduated according to the size of the sinus. The liniment is applied every day. The application does not cause pain, except a momentary sensation when applied to some surfaces; neither does it destroy tissues, as does pure carbolic acid. Granulations do not become excessive. At the first application he inserts a thin piece of gauze or packs lightly, but never at subsequent dressings. Gauze plugs and strips for drainage have undoubtedly been responsible for many chronic sinuses. From the first he gives a mixture internally, containing syrup of iodid of iron, 1 dram, and potassium iodid, 5 grains, three times a day. (British Medical Journal, February 13, 1909.)

IODIPIN IN EYE AFFECTION OF LUETIC ORIGIN.

Dr. W. Zimmerman reports a case in a patient who had been complaining for from twelve to thirteen years of pains in the limbs, and for three years of stiffness in the limbs, weakness in the back, vesical weakness and impotence. Within the last year, vision was considerably impaired, with severe headaches and increasing ataxia. When the patient was first seen he gave the impression of being drunk. The left pupil was larger than the right, but both reacted to light. With the ophthalmoscope, both discs appeared indistinct. The facial muscles were not affected,

sensation was impaired in the lower extremities, the knee jerks were much exaggerated, and Babinsky's reflex was absent, owing to anæsthesia of the soles. Though no history of his could be obtained, the author believes the lesion of the optic discs was due to a gummous process at the base, and the spinal symptoms to meningo-myelitis luetica. Treatment was soon instituted, and two injections of ten cubic centimeters of a 25-per-cent. solution of iodipin were given, and almost immediately the vision and ataxia improved, and after four injections the patient could be sent home; after the seventh injection the pupils were again equal in size. The remarkable prompt action of the iodipin proved the luetic origin of the affection, despite the negative history. (Ophthalmolog. klinik, 1908, Nos. 18, 19.)

MASTITIS, TREATMENT OF.

Dr. Feinen, of Bardenheuer's clinic, recognizes four forms of mastitis, namely, simple acute mastitis, mammary abscess, interstitial or parenchymatous, and gangrenous mastitis, to which may be added a fifth, or tuberculous form.

The inflammation subsided in a few days in the acute form of mastitis after the patient was put at rest and a laxative given. The breasts were held up with moist bandages and the child was kept away. A puncture was made in case of abscess, and then a wick drain was put in after the part was made hyperæmic with Bier's apparatus. The cosmetic result was good. The scar was small, in a few weeks became invisible, and there was no retraction about the scar.

In the interstitial or parenchymatous form of mastitis both the connective and glandular tissue are involved, at times the one and at times the other being the more extensively implicated. The treatment consisted in performing Bardenheuer's operation, which consists in making an incision along the lower border of the gland, separating the gland from the pectoral fascia and raising it up. Then all the inflammatory tissue is removed. After the wound is drained and cleaned, healing takes place in five to eight weeks. No scar is left on the surface, and it is difficult to distinguish the healed from the affected gland. The author, in treating gangrenous mastitis, removes the affected part of the breast and the other half is drained. His results have been favorable. In the case of puerperal tubercular mastitis the entire gland was removed. (Deutsche Zeitschrift für Chirurgie, Bd. 94, Heft 3.)

OPERATIVE TREATMENT OF ASCITES DUE TO HEPATIC CIRRHOSIS.

Dr. Bogojawlensky after an expression of opinion that omentopexy in cases of ascites due to cirrhosis of the liver has not completely fulfilled early expectations, holds that such good results as have resulted from this operation are due mainly to the simple laparotomy and not to the endeavor to establish a collateral circulation by suturing the omentum to the abdominal wall. The good obtained by mere exposure of the abdominal cavity is attributed to an increased capacity of the peritoneum for absorption being set up by the hyperæmia resulting from this operation. The author agrees with Klopstock that in many cases of hepatic cirrhosis, the ascites is due rather to an inflammatory condition of the peritoneum than to a mechanical obstruction in the portal circulation. This chronic inflammation, it is suggested, is set up by irritation of the membrane by toxic matter which, in consequence of

the impaired function of the liver, is carried by the blood to the whole organism, and particularly to the contents of the abdominal cavity. In 10 cases treated by the author, after the whole of the ascitic fluid had been withdrawn, the parietal peritoneum was moistened by normal solution, and afterwards dried by gauze. This method of treating ascites by laparotomy and artificial irritation of the peritoneum should be regarded, the author points out, as strictly contra-indicated in cases in which the renal functions are compromised. (Zentralbl. für Chir., No. 9, 1909.)

OSMIC ACID IN TRIFACIAL NEURALGIA.

Dr. H. H. Germain, Boston, briefly reports eleven cases and concludes: (1) Osmic acid injections will relieve trifacial neuralgia for a longer or a shorter period of time. (2) Relief from pain is not immediate but follows in a few days after injection. (3) It may be followed by a certain amount of necrosis of tissue at the point of injection. (4) It is little, if any, better than other peripheral operations. (5) It is best used in a 2-per-cent. solution injected directly into the nerve, using a glass syringe and a platinum needle. (6) It is to be used only in purely sensory nerves, as its employment in mixed nerves is followed by motor paralysis. In regard to the latter he pleads for greater conservatism and the treatment by hygienic measures and astringents. He gives the indications for the complete removal of adenoid vegetations as follows: (1) Nasal obstruction, causing mouth breathing and its sequelæ; (2) recurring attacks of earache; (3) stupidity and inability of the children to concentrate attention; (4) stunted growth, and in all cases of purulent otitis media in children; (5) in infants whose inability to nurse is due to adenoids, otherwise he never operates on infants under 1 year of age, and believes it a crime to do so. He describes the operation. (Boston Medical and Surgical Journal, February 4, 1909.)

PLACENTA PRÆVIA, TREATMENT OF.

Dr. W. Hannes relates the experience with placenta prævia at Küstner's clinic at Breslau, a total of 246 cases. The maternal mortality was 6.6 per cent. and this mortality would have been much more reduced if the inflatable bag, which is the main reliance in the treatment of placenta prævia, had been applied earlier. The eight deaths among the 143 women treated with the hystereurynter were not connected with the use of the bag in any way. If it had been used in more cases and earlier, there would have been fewer deaths from anæmia, he is convinced. Of the 147 viable children, 70 per cent. left the hospital in good condition and 75 per cent. in the 132 cases in which the hystereurynter had been used. He urges that the old method of version, with its fœtal mortality of 75 or 80 per cent., should be discarded for the hystereurynter with 75 to 80 per cent. living children. Every woman with placenta prævia should be placed in the hands of an expert at the earliest possible moment but every practitioner should be an expert in the use of the hystereurynter. (Zentralblatt für Gynakologie, Leipsic, January 16, 1909.)

POSTOPERATIVE TREATMENT.

Dr. O. D. Hamlin, Oakland, Cal., says that it is the duty of the surgeon to continue and watch his patient until convalescence has set in, in order to prevent any complications which might arise. He should institute after treatment in order that he may be able to treat the complications, if any arise,

intelligently, so as to secure not only recovery, but the best functional results. The author urges the right side posture when the patient is taken from the operating room or begins to recover from the anæsthetic and also discusses special postures for special cases. For anæsthetic vomiting he recommends large draughts of water containing some alkali, such as sodium bicarbonate. After lavage of the stomach, cocain hydrochlorid, gr. $\frac{1}{12}$ (0.005 Gm.) bismuth subnitrate, gr. 5 (0.032 Gm.) and cerium oxalate, gr. $\frac{1}{2}$ (0.003 Gm.) may be given dry on the tongue. Sometimes it is useful to spray the nostril with 4 per cent. cocain solution. Finally, he discusses at length post-operative shock under four different classes, namely that due to vasomotor depression, hæmorrhage, the toxic effect of the anæsthetic, and mental disturbance, psychic shock. This last is particularly likely to occur in neurotic and alcohol patients, children and others of timid nature. (California State Journal of Medicine, December, 1909.)

PROPHYLAXIS IN EPIDEMIC CEREBROSPINAL MENINGITIS.

Dr. Seibert sums up what we now know: (1) Epidemic cerebrospinal meningitis is communicable only by direct contact with fresh mucus from the nasopharynx of patients. (2) A person who has taken the germ from a patient may acquire meningitis. (3) Such a person may only acquire meningococcus pharyngitis and, thus acting as intermediary host, may carry this infection to others near and far.

The author recommends the application of a solution of equal parts of resorcin and alcohol to disinfect the nasopharynx. The alcohol must be heated before the resorcin is added. Two applications, one past each side of the uvula, are sufficient. The stomach must be empty. The solution is said to destroy every organism it comes in contact with. The applications are best repeated every forty-eight hours. Six treatments will usually suffice. The author concludes that resorcin and alcohol should be used: (1) In the nasopharynx of the patient to prevent further absorption, as well as expectoration, of meningococci. (2) In all persons coming in contact with a patient, especially when postnasal catarrh is present. (Journal American Medical Association.)

PYRENOL IN THE TREATMENT OF ASTHMA AND EMPHYSEMA.

Dr. Boellke has found this drug of great service in the treatment of emphysema and asthma. It is given in doses of 3 to 4 grams per day. It is a product of Siam benzoic acid and thymol with synthetic benzoic acid and oxybenzoic acid, and is therefore an expectorant, and possesses by reason of the thymol an anæsthetic property. Dr. Boellke has observed its action in 39 cases, of which notes are given of five. The dyspnœa is relieved in three to four days, and expectoration becomes looser generally on the second day. The cough soon loses its hard and paroxysmal character. A number of patients experienced a sense of well-being to which they had long been strangers. The bronchitic sounds disappeared from the chest, in many cases almost entirely. Relapses were observed in one case only. No harmful influence of the drug was observed, even with long-continued use. No lessening of the effect with time or cumulative action was found. Complications on the part of the heart, kidneys, or liver are not contraindications. Those who had formerly been treated with atropine or potassium

iodid declared that pyrenol gave the best results. (Med. Klin., February 21, 1909.)

RUPTURED KIDNEY, TREATMENT OF.

Dr. Morestin discusses the indications for direct surgical intervention in extensive laceration of the kidney. The author states that when there is free and persistent bleeding with large perirenal hæmatoma; and the condition of the patient is such as to excite much anxiety, the surgeon should not hesitate by the simple and harmless procedure of a lumbar incision to expose the injured kidney with the views of dissipating doubt, of arresting the flow of blood, and of protecting the patient against remote complications. Removal of the kidney should only be practised for the extreme forms of traumatism in which the kidney has been either completely crushed or torn away from its hilum. In most cases, Dr. Morestin asserts, the condition of the ruptured kidney will permit a conservative operation. Suture of the lacerated kidney is possible, and, indeed, a relatively simple measure. It may enable the surgeon to re-establish the shape of the organ, and will suffice to arrest bleeding.

The sutures are indicated in those cases where the laceration is not extensive because the sutures favor the formation between the apposed surfaces of torn renal tissue, cicatricial septa which will tend to keep the fragments anatomically distinct. Moreover, the tension of the sutures may modify the functional value of the preserved organ. If the kidney be much torn, but still in a condition favoring conservatism, it might be well, it is suggested, to arrest the bleeding and to treat the injury by simple packing. It remains uncertain whether the conservative treatment of ruptured kidney which is so satisfactory and free from danger in its immediate results, is likely or not to lead in course of time to any serious disturbance of the function of the retained organ. (Bull. et. Mém. de la So. de. Chir. de Paris, No. 36, 1908.)

SALT IN THE TREATMENT OF INTERNAL HÆMORRHAGE.

Dr. von den Velden has studied for a year the use of salt by mouth or in infusion as a means of controlling hæmorrhage. His experience has confirmed the traditions in regard to the influence of salt in this respect. In the living subjects the salt enhanced the coagulating power of the blood and attributes this coagulating influence to the mobilization of thrombokinase stored up in the tissues. The author obtained excellent results in 29 cases of hæmoptysis from administration of 5 Gm. (75 grains), of sodium chlorid by the mouth, the coagulating properties of the blood being much increased thereby for a period of from an hour to an hour and a half. The effects became evident in a few minutes. If the tendency to hæmorrhage returns later, he repeats the dose of salt or substitutes sodium or potassium bromid in the dose of 3 Gm. (45 grains), the bromid having further, a sedative action. He does not hesitate to keep up this combined sodium chlorid and bromid treatment, giving in the most urgent cases from 20 to 30 Gm. (℥v to ℥j) of sodium chlorid and from 12 to 15 Gm. (℥iij to ℥iv), of the bromid during the day. Any tendency to bromin intoxication is corrected by the sodium chlorid. In nine other cases he administered the salt or bromid by intravenous injection as he did not wish to irrigate the digestive tract or kidneys. This series includes seven patients with hæmoptysis, and each with hæmorrhage from varices in esophagus or bladder or

typhoid lesions in the bowel. He never witnessed any disagreeable effects from this treatment. The beneficial results were apparent in hæmorrhage both in the lung and greater circulation. Hemophilia is a chronic defective condition for which a transient increase in coagulating power is of little avail. The hemophilic tendency is probably the result of defective production of thrombokinase. (Deutsche medizinische Wochenschrift, February 4, 1909.)

SCARLET FEVER, TREATMENT OF.

Dr. Gordon discusses the treatment of uncomplicated cases of average severity, toxic cases (serotherapy), septic cases (local treatment), complications and convalescence. In order to prevent the swallowing of the septic faucial secretion, lozenges should not be given. The neck should be packed externally with ice bags in order to relieve the pain. The author uses a douche of warm water which has been rendered faintly alkaline with sodium bicarbonate in order to diminish absorption of the toxines from the fauces. The object of this procedure is flushing and not disinfection. The patient should lie on his stomach with the head projecting over the edge of the bed, the forehead supported by one hand of the nurse. At least two pints should be used for each irrigation. Gentle swabbing with a solution of borax is sometimes useful in adults, but the application of germicidal solutions should not be used, and neither the spray nor the paint brush has any legitimate place in the treatment of the throat. A separate nozzle should be used for each patient. In toxic cases he discusses the use of serum, which should be polyvalent, sterile, and not more than six months old. From 50 to 100 c.c. should be given, and he has never seen any harmful result therefrom. In septic cases, germicides should be used in as concentrated a form as possible, in small quantity and should be applied with a swab. The douche also should be constantly used as before recommended. It is not advisable to incise enlarged and tender cervical glands unless definite evidence of fructuation is obtained, so long as the skin over them is not affected. In septic, as distinguished from toxic cases, streptococcus serum should be avoided. Alcohol in Dr. Gordon's experience is usually both unnecessary and harmful in septic cases. (Practitioner, London, January, 1909.)

SUPERFICIAL PNEUMOCOCCAL AFFECTIONS OF THE GLOBE, TREATMENT OF, BY MEANS OF RABBIT'S BILE.

Dr. V. Morax reports a number of cases of pneumococcal corneal ulcers in which he brought about a cure in from a week to a fortnight, with complete transparency or very slight cloudiness of the cornea. He used a sheep's bile which was gathered aseptically at the abattoir immediately after the slaughtering of the animal by means of sterilized pipettes. In one case iodoform, atropin and hot compresses were combined with the use of the bile.

Dr. Neufeld has pointed out that if two or three drops of rabbit's bile be added to a pneumococcus culture in bouillon which has been kept for twenty-four hours at a temperature of thirty-seven degrees centigrade, the culture clears rapidly and after a short time the bouillon can be shown to be free from any activity, whether the examination be made with the microscope, by culture or by inoculation. The bile from dogs, rats, goats and human beings also possesses bacteriolytic power. This property of the bile has been shown to be due to the

presence of biliary salts and these salts have been arranged in their order of efficacy. (Annales d'oculistique, November, 1907.)

SYPHILIS OF THE NERVOUS SYSTEM, TREATMENT OF.

Dr. G. Köster states that great care should be exercised in the treatment of syphilis with mercury even when there are already signs of atrophy of the optic nerve, as it has been known to aggravate the condition. Since suspension of this treatment does not arrest the aggravation, he advises potassium iodid first, and if mercurial treatment becomes necessary on account of other syphilitic manifestations, the eye should be examined every third day by the ophthalmologist. If mercurial treatment is undertaken, it should be with constant oversight of the conditions in the fundus. The author greatly emphasizes the fact that atoxyl—a widely advertised drug, alleged to be free from toxic action and to be a sort of a panacea for diverse diseases, in treatment of syphilis, is proving a two-edged sword which should be used only with extreme caution. This atoxyl is not only liable to have an injurious influence on vision, but may induce disturbances in the voiding of bladder and bowel contents, leading to total incontinence. A course of mineral waters, as at Aachen, Wiesbaden or Tölz, is a powerful adjuvant in treatment of syphilis of the nervous system on account of the stimulation of the general metabolism. Even if no benefit is derived from the first course of the kind, experience has shown that hitherto apparently irreparable symptoms may subside during a second or third repetition. (Fortschritte der Medizin, Leipsic, January 20, 1909.)

THE KNEE-JOINT, SURGICAL CONDITIONS OF.

Dr. Tenney (Annals of Surgery, Nov., 1908), thus concludes an article on this subject containing many illuminating case histories:

1. Asepsis and drainage are more essential in knee-joint work than in laparotomies because of the difference in the skin of the operative field and in the natural drainage of the cavaties.

2. Sepsis and immobility mean ankylosis. Drainage and mobility may leave some motion.

3. There is an increasing tendency toward operative repair of patellar fractures and an increasing use of absorbable material. This should be the rule, to which exceptions may sometimes occur.

4. By far the most common mechanical cause of trouble within the joint is the tab from the infrapatellar pad. This may be a part of a general obesity, in which case the usual antifat treatments are appropriate. If it be found in a vigorous and otherwise normal person, it should be removed. Some temporary relief may be obtained by properly applied adhesive straps, but a cure only be removal.

5. Prepatellar bursitis can be cured by incision and drainage. Other bursæ should be dissected and removed.

6. Ligamentous injuries must be carefully treated and some must have operative repair to prevent recurring or constant disability. No apparatus is so good as a normal knee. (The Therapeutic Gazette, February 15, 1909.)

THYROID TREATMENT OF ICHTHYOSIS.

Drs. Weill and Mouriquand report in detail two cases of congenital ichthyosis in which the connection between the affection and the defective functioning of the thyroid was plainly apparent. In

the first patient, the thyroid treatment was commenced at the age of five months; in two month's the congenital ichthyosis subsided and in two months later it had entirely disappeared. After suspending the thyroid treatment, a preparation of arsenic was given. The ichthyosis returned but yielded again to the resumption of the thyroid treatment which the child seemed to tolerate perfectly and at the present time the child is lively and well, all evidences of myxœdema have likewise vanished. In another child in which there were also signs of myxœdema and the presence of a mongolian aspect, very favorable results were obtained from the thyroid treatment. After reviewing the literature on this subject, Dr. Weill is convinced that certain cases of ichthyosis ascribed to inherited syphilis, were really of thyroid origin, the thyroid lesion being possibly secondary to syphilis. He believes that sufficient data are at hand to demonstrate the influence of the thyroid on the nutrition of the subcutaneous cellular tissue (myxœdema) and of the derma (sclerodema in exophthalmic goiter and in myxœdema.) It is logical, therefore, to ascribe a similar influence to it in the development of the superficial layer of the skin, so that disturbance in thyroid functioning may possibly entail ichthyosis. (Presse Médicale, Paris, February 17, 1909.)

TREATMENT OF ANEURYSM OF THE NECK.

Dr. Guinard discusses the various methods of treating aneurysms of the base of the neck and commands simultaneous ligation of the carotid and subclavian on the right side, commencing always with the carotid. His technic is simple and harmless as shown from his experience of fifteen cases. He states that the aneurysm can be pushed to one side, if it hides the vessels to be ligated. Silk or catgut can be used, and drainage is not necessary unless the operation has been long and difficult. It makes no difference whether the aneurysm is on the ascending portion of the aorta to the right or on the subclavian or common carotid. His method of treatment is applicable for all aneurysms at the base of the neck and the results are better, the greater the distance between the aneurysm and the heart. The symptoms in respect to the pulse, sphygmography and compression of neighboring organs are deceptive, but radioscopy may render good service. One hundred per cent. of cures are reported in the recent statistics in regard to aneurysm of the innominate. The author reports a case of aneurysm of the left end of the arch of the aorta in which he ligated the aorta below the aneurysm. As the ligation was drawn tight, the femoral pulse stopped at once and the lower part of the body grew pale and cold, but in less than 15 minutes circulation became re-established and the parts grew warm. The upper part of the trunk and head began to sweat profusely, suggesting that the kidneys were not working properly and that uræmia was pending. Ligation of the aorta above the renal arteries proves inevitably fatal owing to the arrest of the physiologic functions of the kidneys which require a considerable degree of blood-pressure in the renal arteries. (Revue de Chirurgie, Paris, February 29, No. 2.)

TREATMENT OF CHILDREN SUFFERING FROM RHEUMATISM OR CHOREA.

Dr. D. B. Lees states that every case of chorea in childhood should be considered as presumably rheumatic, and ought to have the benefit of this probability. Every such patient should be

at once sent to bed, and treated vigorously for rheumatism. He claims that almost the whole of the heart diseases which exist in patients under thirty years of age, as well as a very considerable proportion of the heart disease of later life, is the result of rheumatic infection of childhood that was either unrecognized or ineffectively treated. The author emphasizes the point that every child who complains of sore throat or of pains in the joints, muscles or tendinous structures, every child who suffers from malaise and unexplained pyrexia, every child whose skin shows spots of erythema or who has subcutaneous nodules on his tendons or round his joints, or subperiosteal nodules on his bones, every child who has pain in his chest, or shortness of breath, or marked pallor, and every child exhibiting even slight choreic movements or merely weakness and incoordination of muscular action or emotional instability should at once be put to bed and his heart should be promptly and carefully examined. The author cites Poynton and Paine's demonstration of a diplococcus in rheumatism and chorea which is capable of producing in rabbits, not merely endocarditis, but cardiac dilatation, myocarditis, pericarditis, arthritis, pleurisy and pneumonia, also subcutaneous nodules and tenosynovitis; in short, all the severe lesions found in a rheumatic child. (British Journal of Children's Diseases, London, March, 1909.)

TUBERCULIN TREATMENT FOR INFANTS AND CHILDREN.

Dr. A. Schlossman reports very good results from the use of tuberculin in the treatment of infants and children. The tuberculous child does not react with formation of antibodies until rather large doses are given. Treatment should, therefore, commence with a stage of small doses, to render the child's organism tolerant to the tuberculin. The child reacts to tuberculin with a vigorous production of antibodies when it has reached a tolerance for the dose of 0.1 Gm. (1.5 grains) of tuberculin. After the child has been given small doses, it should be followed by a period of prolonged treatment with large doses at suitable intervals, and production of antibodies follows. In any case he has never observed untoward effects from large doses. He is convinced that the children were doomed from the start in the cases in which the cautious use of tuberculin failed to arrest the tuberculous process. These occasional failures should not deter from the use of tuberculin, which he regards as the best means of diagnosis and therapeutics at our disposal in the fight against tuberculosis in children. Among the experimental experiences related were some with guinea-pigs artificially fed after birth; deprived of their natural food they displayed much less resistive vitality. (Deutsche medizinische Wochenschrift, Berlin, February 18, 1909.)

TUBAL DISEASE, TREATMENT OF.

Dr. Palmer Findley advocates the following conservative measures applicable in the treatment of chronic salpingitis:—

Vaginal douches of water at 110° F., twenty minutes in duration and repeated twice daily, are given in the recumbent position. Glycerin (93 parts) and ichthyol (7 parts) tampons are applied daily. Combination of the douches and tampons affords the most effective means of depleting the congested pelvic tissues. Under the treatment tenderness and pain are relieved, inflammatory swellings are reduced, and the functions of the tubes and

neighboring organs are in part or wholly restored. Under this treatment, extending over a period of one year, he has seen a case of bilateral pyosalpinx arrive at a functional cure, and to the degree which provided for pregnancy and a successful delivery. Pelvic massage, properly directed and persisted in for the requisite time, will bring favorable results in selected cases, but in America this method of treatment has found little favor. He has personally found little satisfaction in it. (Interst. Med. Journal, December, 1908.)

TUBERCULOSIS, TUBERCULIN-ARSENIC TREATMENT OF.

Dr. Mendel calls attention to the combination of tuberculin and arsenic for the purpose of favoring nutrition, promote the vital energy and thus increase and protect the resisting power of the cells. This combination of drugs utilizes the influence of the tuberculin in inducing an inflammatory reaction in the vicinity of the tuberculous focus. This local inflammatory reaction attracts the injected drug to the spot, so that the arsenic accumulates in and around the tuberculous focus, stimulating the tissues at this point to extreme defensive and resisting action, and thus raising an effectual wall around the tuberculous focus, preventing its further spread. The union of these two drugs thus fulfil all the conditions which Ehrlich demands for an ideal chemotherapy: the supply of the "distributive substance" (tuberculin), and of a "pharmacophor group" with a specific action (arsenic plus tuberculin). The author has long been an advocate of this method of treatment and his experiences have confirmed the surprising way in which minimal doses of tuberculin injected into a vein stimulate the production of the protecting substances in the organism infected with tuberculosis. (Müncher medizinische Wochenschrift, January 5th.)

TYPHOID FEVER, TREATMENT OF.

Treatment of typhoid fever perforatim is thus summed up by Dr. J. D. S. Davis of Birmingham, Ala.:

1. Typhoid fever is a surgical disease.
2. About five per cent. of typhoid fever cases perforate.
3. Nearly all perforating cases die if left to nature's resources.
4. A large per cent. may be saved by prompt operative interference.
5. Incision should be large enough for expeditious work, preferably through right rectus fascia.
6. Lavage with hot saline is essential in a large number of cases, especially when fecal extravasation has taken place.
7. If a perfect peritoneal toilet can be secured, abdominal closure may be made without drainage.
8. Treatment by posture (Fowler's position) to confine bacteria and septic material to lower abdomen is important.
9. Treatment should be directed to destroy or impede growth of bacteria already in the tissues and blood—anti-streptococcus serum and unguentum Credé.
10. Elimination should be secured by physiological salt solution hypodermically when indicated for failing heart, and proctoclysis continually until sepsis is overcome.
11. Supportive treatment should consist in transfusion of salt solution or blood; strychnine and digitalis for heart stimulant; sparteine, in large doses, for general stimulant and prophylactic against suppression of urine; morphine should be given to control peristalsis and produce rest, control shock; and nourishment should be given as early as possible. (Medical Times, March, 1909.)

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DIET AS A PROPHYLACTIC AND THERAPEUTIC.*

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THERE is an increasing belief in the medical profession, and this belief is founded on substantial evidence, that diet is an important factor in the production and cure of disease. Both the words "production" and "cure" are used here in their ordinary sense, meaning as aids to, or favorable to, and not as possessing specific properties of production or effacement. By reason of the provisions of the Food and Drugs Act the term "cure" is now somewhat restricted in its applications. The common practice of advertisers of patent or proprietary medicines in the past was to advertise them as a "cure" or "sure cure" or "infallible cure" for various diseases, and also to place similar statements on the labels. When the law was enacted forbidding the use of a statement which was false or misleading in any particular, and especially since the courts have judged that the word "cure," in the strict sense of that term, may not be applied to a remedy or medicine, less use is made of the word. For this reason I have used the term above in the restricted sense of establishing favorable conditions whereby the natural removal of the disease might take place, rather than as exerting a specific influence in the removal of the disease and the restoration of the diseased organ to a state of health. I propose to eliminate from the present discussion the well-known effects of adulterated or debased foods in the promotion of disease, and shall confine myself in the main to the influence of nutritious, palatable, wholesome, and clean foods, both as a preventive and as a remedy.

* Read before the American Therapeutic Society, New Haven, Conn., May 6-8, 1909.

If we accept the modern theory of specific infection in the etiology of disease, we should also accept its attendant theories, which may be briefly stated as follows: A perfectly healthy, well-nourished organ becomes infected with any disease germ with great difficulty; in other words, it is self-protective. I shall not enter here into any details concerning this theory, but only state it briefly. Granting this, therefore, it is self-evident that the food or diet must play a most important part in the prevention of disease. The normal condition of the body, or any organ of the body, and hence its maximum power to protect itself against infection, is directly dependent upon the character and the amount of the diet. It follows, then, as a necessary conclusion that the debasement of the diet, the addition of injurious substances thereto, or the abstraction of valuable ingredients therefrom, diminishes the power of that diet to maintain the body in a state of hygienic equilibrium. Hence, the normal condition follows when foods are furnished of a proper quality, assuming as a basis of the discussion that such foods shall not be so manipulated as to incorporate with them an ingredient injurious to health; to take from them any quantity of their nourishing properties which would unbalance their nutritive value; or to treat them in any manner so as to impair their power to sustain life.

The second condition regarding diet as a prophylactic is its quantity. It will be easily understood from the above assumption of the basis of discussion that the proper quantity of food to maintain the equilibrium is a condition of efficiency. If less food than is necessary is ingested, the body must lose a portion of its sustenance and a part of its ability to withstand infection. On the contrary, if a larger quantity of food is ingested than is necessary, an additional burden is placed upon the organs of digestion in ridding the body of the excess, or of storing the excess of nutriment in some form, usually that of fat, in the tissues of the body. Either condition must be regarded as unfavorable to complete prophylaxis, and hence either a deficiency or an excess of food would to that extent predispose to diseases of the kind mentioned. It is, of course, understood that these variations within ordinary limits are not of any appreciable effect. If on one day a person should eat a little less food than necessary for normal nutrition, and on the next eat a little more, varying in this way from time to time, no appreciable effect would be noticed. On the other hand, the person who continuously uses less food than is necessary, or one who continuously uses more than is necessary, must to that extent become more obnoxious to disease. In the second place, assuming that the total quantity of the food remains the same, any marked and continuous change in the relations of its natural constituents must be looked upon with suspicion.

The normal food of man, and of other animals as far as that is concerned, may be divided into five great classes, namely: protein, fat, sugar (starch, etc.), mineral, and waste or indigestible portions. Each of these constituents has a useful function and the sum of nutrition is the normal ingestion of all of these ingredients in their usual proportions. Here again it must be acknowl-

edged that slight variations in distribution of ingredients may take place without any notable injury, just as is the case with the variation of total amount of nutrients. But if one essential ingredient to which the human body is accustomed, and on which it has been developed to its present state of normal equilibrium, should be persistently removed from the food, in my opinion mankind's ultimate power of resistance to disease would be diminished. It is well known for instance, that a diet of protein alone will speedily lead not only to the danger of infection, but also to positive weakness and starvation. In like manner a diet of carbohydrates alone would result in the same condition, and this is true of a diet of fat, or a diet of the mineral constituents, or a diet of the waste constituents. I take it as a proposition very difficult to disprove, and sustained by every principle of analogy and reasoning, that the ordinary normal diet of man, selected by the necessities of nutrition and by taste, is considered all in all the best. To illustrate more particularly, I heard the Surgeon-general of the Japanese Navy, in a lecture in Washington, about two years ago, ascribe the disease known as beriberi to a carbohydrate diet. Rice being one of the principal foods of the Japanese, and almost the only food of the poor, the Surgeon-general ascribed the prevalence of beriberi among the Japanese, especially the Japanese sailors, solely to the use of that diet. On the other hand, it has been thought that scurvy is a disease due largely to the elimination from the dietary of the vegetables that are eaten in the normal condition of nutrition. These two illustrations, which are more or less founded upon observation and scientific investigation, I think may be accepted as at least indicative of what might be expected should any usual elements of the diet be either increased or decreased proportionately to the other elements.

Among other statements which have been made in this line by most eminent men, and those whose scientific learning and judgment we all respect, is the one that the normal diet of man, especially in the United States, contains too large a percentage of protein. Data have been collected in an experimental way which tend to show that diminution in the amount of protein in the food leads to very beneficial results, increasing the strength and endurance of the subjects experimented upon. It is true that this conclusion has also been questioned by high scientific authority, and so we may regard it at the present time as neither established nor disproved by scientific data. Applying the principle of analogy to this condition of affairs, we may properly ask if a diet so low in protein should be continued for a long period of time, whether some notable injury would not be done to the human body which would render it more obnoxious to disease. In fact, might we not expect an approach to that condition of affairs already alluded to in the case of the beriberi of the Japanese sailors? Might not there be other effects also not immediately noticeable which would render the general introduction of a diet into the United States containing, for instance, only half as much protein as that already consumed, dangerous to the general health of the community? I ask this without in the least calling into question the fact that the actual amount of protein which we consume may be greater than is desirable. In that case we would expect

that the human body would be subject to other diseases, especially of those organs which are called upon particularly to excrete the protein, or its decomposition products, from the body. In other words if, for the sake of illustration, and the figures are somewhat exaggerated, we should assume that the normal, healthy man of the United States at the present day consumes 20 grams of nitrogen per day in the form of protein and the man under the proposed regimé only ten grams, would the new order of affairs produce a race of men less subject to disease than the present one? We might all admit that the reduction of the quantity of nitrogen from 20 to 18 grams might be desirable, but would not be inclined to go to the extreme of supposing that it should be diminished by one-half or two-thirds, or even more.

I need hardly refer here to another question in respect of wholesome foods in their relations to health, namely, that of mastication. I believe that all admit the desirability of mastication, both as a mechanical necessity preliminary to deglutition and also preliminary to the proper mechanical state for the first steps of hydrolysis in the process of digestion. This having been properly accomplished, the question may arise whether or not the carrying of mastication to excess might result, first, in diminishing the actual quantity of food necessary, and, second, in actually interfering with the proper process of digestion. Since the beginning of the human race, and before, the sense of hunger has been the normal gauge of the quantity of food ingested, and I think it must be admitted, if we believe in the principles of evolution, that this sense of hunger has fixed properly the quantity of food necessary. We need not discuss those abnormal cases where the natural sense of hunger leads to over-eating, or where its absence leads to under-eating, but I speak only of the average normal condition. I believe it may be accepted that excessive mastication, therefore, would tend to satisfy the sense of hunger with a less quantity of food than is needed in normal conditions. Let me put the case a little differently: Normal man must masticate his food in a manner whereby it can be easily swallowed, and this fits it for the ordinary process of digestion. If a man should excessively chew his food it seems to me that it is almost certain that a less quantity of it would satisfy his craving. In other words, a man who gives his whole attention to mastication must necessarily in a short time lose the sense of hunger—in a much shorter time, in so far as the quantity of food is concerned, than he would otherwise. Hence, while it is perfectly easy of demonstration that a somewhat more extensive degree of comminution of the food may be desirable, it does not hold that it should be carried to extremes; or putting it another way, speedy digestion is not to be regarded as synonymous with nutritive digestion. I think it may be easily understood that just the contrary would be the case. Suppose, for the sake of argument, that mastication could be continued until the food was reduced to its molecular condition. Such food, we might assume, would be digested almost instantaneously, but if the absorbent system remains in its present condition it would be quite impossible for that food to enter the circulation in an instantaneous manner. Much of it would necessarily, in the natural motion of the intestinal organs, soon pass beyond the region of absorption and escape enter-

ing into the nutritive processes entirely. Thus I venture to ask the question whether it may not be possible that excessive mastication, that is, converting the meal hour into a mere mechanical exercise, may not in the end threaten the human family with grave dangers of insufficient nutrition? I ask this question without in the least denying the principle that mastication is a desirable and necessary process.

I come now to the second part of the discussion, that is, a condition where disease has already become established. What now is the function of food respecting its therapeutic value? Every physician recognizes the necessity of sustaining to the utmost the vegetative functions of the body in disease. Disease, as it is usually found, may be defined as that condition of metabolism in which catabolism is more active than anabolism. In another sense the contrary is true, and the excessive production of tissue, especially of adipose tissue, is in some respects just as much a disease as the loss of weight, which we usually associate with most diseases. In my opinion the disease which results in hypertrophy may, as a rule, be entirely controlled by diminishing the amount of food, unless it has gone so far as to be practically irremediable. The excess of activity of anabolism is associated very frequently with advancing years. The habit of eating becomes fixed in childhood, youth and manhood, that is during the period of growth and maximum activity of life. When senectitude approaches, if the habit of eating remains unchanged, larger quantities of food are ingested than are required for the new conditions that attend incipient old age. There is thus an accumulation of tissues which may become of a character conditioned upon an actual derangement of nutrition. On the other hand, the condition usually found in disease is the activity of catabolism. The moment the temperature of the body rises above the normal, catabolism gains the ascendency. This is based upon the plain laws of thermodynamics. The waste of tissue that is the attendant of disease often becomes so great as to threaten, and even actually cause, the death of the patient. To combat this condition and stimulate anabolism, food of a proper kind is one of the most valuable of the armaments of the physician. But, in this condition, we have an entire change of relations. The natural desire for food usually has passed away. The character and activity of the digestive ferments are changed. There is often disease of the digestive organs themselves, and when not actually diseased their activity is so impaired by the disease of other organs that they cannot be treated as in the case of health. Hence, the use of food in disease is regulated by entirely different conditions from use of it in health. I may say that the introduction of drugs of any description into foods which are intended for invalids is not only undesirable, but, in my opinion, criminal. Let me illustrate this by a simple statement: Among all the foods which are proposed for conditions of disease, there is none which is so valued as milk. The value of sweet milk as a food, even in a state of health, depends largely upon its purity and freshness, and in a state of disease these two qualities are

absolutely imperative. The healthy man may use considerable quantities of milk that contains millions of organisms per cubic centimeter, or milk dosed with formaldehyde, boric acid, benzoate of soda or other preservative, and receive no apparent injury; but the case is entirely different with the invalid. The injestion of even minute quantities of these bodies, or of old milk not yet sour, may, and probably does, induce positive injury. Even pasteurized milk may be undesirable, especially in the case of infants, as has been illustrated by the reports of many physicians. The healthy adult, in my opinion, can drink pasteurized milk with impunity, provided the milk was good when pasteurized, and did not need pasteurizing, but the same good milk, pasteurized and used in a state of disease, might be open to serious objections. Another illustration: Physicians often prescribe fresh fruit juices for invalids and convalescents. The fresh juices of the apple and of the grape are those usually employed. About a year ago Judge Morrow, of the Federal Court of San Francisco, came to my office on his way home from Germany. While there his physician had advised him to drink fresh pasteurized apple juice, and he had done so with great benefit. He came to see me to ask where he could get fresh, pasteurized, unchemicalized apple juice in this country. I reluctantly told him that I did not know; that my experience in buying fresh apple juices on the market had led me to believe that they were almost universally dosed with some antiseptic, either salicylic acid, benzoate of soda, or sulphurous acid. He said his physician had told him to avoid all such mixtures. At the present date, however, I can say that matters have improved very much. Large quantities of fresh apple juice and fresh grape juice are now placed upon the markets without the addition of any chemical whatever, and they are preserved in a much more palatable and much more salable state than ever before. This is illustrated by a letter I have recently received from a manufacturer of fresh grape juice at Sandusky, Ohio, which is as follows:—

"Sandusky, Ohio, March 25, 1909.

"We wish to state that the three barrels of Grape Juice which you and our Mr. Appel had sealed last October kept in first-class condition, as did also our entire output, and we are pleased to advise you that, with the exception of a small stock of Sulphur Grape Juice still on hand, which we are placing in a limited section of territory, we have withdrawn the sale of Sulphur Juice altogether from the market, and are now offering nothing but the Absolutely Pure Article."

The first requisite which we should make for foods for invalids is that they should be pure. The next most important thing is to find a pure food that the invalid can digest. You cannot nourish an invalid *vi et armis*. You must find out what he can eat and give him that, whatever it may be, and if the digestive organs themselves are diseased, a greater care must be exercised. Very often sick people have an irreconcilable antipathy to articles of which, when they are well, they are frequently very fond, and this

idiosyncrasy of the invalid must be respected by the physician. It has frequently been observed in cases of low nutrition that sour milk, or koumiss, may be taken with relish and with benefit when other forms of food seem to be rejected. I am not a protagonist of the belief of Metchnikoff that sour milk is the elixir of life. A theory of this kind would have to be demonstrated, and it would take a hundred years to demonstrate it. But even from theoretical considerations the theory does not appeal to me, and I am not going to discuss it here. In my limited experience at the bedside of the sick, as physician or friend, I have seen some excellent results from the use of koumiss. In my opinion the physicians of this country should undertake to promote the production of a pure koumiss, and I do not mean by that that it shall be made of mare's milk, as it originally was; nor do I use the word in the strict sense of the Food and Drugs Act—I mean good milk fermented in a bottle, or, in other words, "lacteal champagne." This is only mentioned, however, as one of the things that might be more properly prescribed in conditions where inanition is often a greater danger than the disease itself. And here I am led, in the kindest of spirits, to remark that the science of nutrition is unfortunately not very extensively included in the curricula of our medical schools.

I must also be allowed to say that the most preposterous dicta that I have ever heard concerning diet have come not from teachers of dietetics and cooking, but from physicians themselves. In the progress of medical education the near future, in my opinion, will see the professorship of dietetics in a medical school advanced to the same rank as that of medicine, and I am even going further than this, and say that the practice of medicine in the future will be largely a practice of dietetics.

When I sat down to write this article I had expected to apply, to some particular disease, the principles which I have tried to lay down, and especially did I have in mind tuberculosis, but the time allotted to me has been used up, and not one of the ten leading authorities on dietetics which I had marked and placed upon my desk has been opened. I shall leave this for another time. I simply want to say that I believe it is now acknowledged by physicians that the successful treatment of tuberculosis depends largely upon the diet. Here is one of the cases where apparently,

"While the Bauch holds out to burn,
The lowest lunger may return."

I have the greatest faith in the future of prophylactic medicine, and perhaps the day will come when the physician will be paid in proportion to the effectiveness of prophylaxis. While it is true that diet is only one of the factors in prophylaxis, as well as in therapeutics, it is, in my opinion, one of the most potent factors; and undoubtedly a symposium, such as that of today, in which all the various points of view relating to diet are prominently brought out, cannot fail in doing effective work for good.

THE THERAPEUTICS OF SOLUTION OF CALCIUM CREOSOTE.

By LOUIS KOLIPINSKI, M.D.,
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Creosote administration has been hampered by the acrid taste of the substance, and by the nausea and vomiting too readily induced in many with any other than small doses. Those who had successfully absorbed large amounts were looked upon by medical men as exceptional curiosities, and sooner or later these cases diminished in interest because of their refusal to continue the use of it or through positive revolt from attaining still larger quantities. The various formulæ for combining it with aromatics and vinous liquids, are very inefficient to obtund its local effects as are digestants or the use of pills or capsules.

Thereupon this subject was seized upon by the makers of secret remedies and various wonderful substitutes and derived compounds of creosote discovered and proclaimed with all the ardor of words that the thirst for gold can stimulate.

A preparation possessing in a perfect degree all of its medicinal virtues and not any of its objectional actions is calcium creosote. This has been employed in therapy by the writer long and extensively. In the preparation and uses of it he has been aided by his friend and colleague, Dr. Arthur J. Hall. All of the following therapeutic actions have been confirmed by him and several original effects on disease observed.

Creosote has marked chemical affinity for calcium and this property early recognized was the basis of a method of its extraction from wood tar. When molecular weights of creosote and calcium hydrate are triturated together, there results a purple-red granular mass with a slight odor of creosote and a sharp taste, which is soluble in water and stable in preservation. The solution of this body prepared according to the following method was the form used.

Take an excess of calcium hydrate, freshly prepared, four or five pounds and having introduced it into a suitable percolator, add with stirring a pound of creosote. In a little while when the mass begins to cool pour upon it enough water to convert the whole into a magma or thick fluid. Collect the solution by slow percolation. The specific gravity should be 1.010-1012. If the first liquid collected is less than this, return it into the percolator. When most of the calcium creosote is dissolved as is evident by the sudden sinking of the specific gravity, add another pound of creosote to the residue and resume the process. A pound of creosote yields twenty pints of calcium creosote solution. It is a light refracting reddish-yellow liquid becoming brown on keeping and depositing, on exposure to air, a precipitate of calcium carbonate. It has the odor of creosote and a smart peppery taste but no irritating or caustic effect on tegumentary membranes. It has a strong, alkaline reaction. Its antiseptic properties are like those of creosote. It is a good preservative for meat, for animal specimens and for urines.

The proper doses of calcium creosote are: for an infant of one year, from

three to five drops in water every 2 or 3 hours. For a child of six to eight years one teaspoonful as often as the former; for an adult, two to four teaspoonfuls in a tumbler-glass or less of water. These quantities can often be given day and night. The patient is thus able to take four fluidounces more or less per diem a quantity equivalent to ninety-six drops of creosote. A fluid dram of the solution contains 1+ grain of the compound.

Six fluid ounces a day have at times been given without protest or any unpleasant reaction. An efficient dose for an adult in all cases of acute disease is two teaspoonfuls and this amount need not be increased.

There are several disturbances that may, in rare instances mar the harmony of its action. In frail children the dose of a teaspoonful may result in speedy vomiting or regurgitation. This requires a reduction to one-half or one-quarter of the first quantity for further tolerance.

In very infrequent examples it produces a skin eruption; affecting in succeeding order the extremities, trunk and face. This is a roseola, with an efflorescence in size like that in secondary syphilis and of a bright red or purplish color. It may be mistaken for that of the venereal disease or morbilli, hardly for that of copaiba balsam. There is moderate itching felt, but insufficient to disturb sleep.

The appearance of this rash need not demand a suspension of the use of the solution. It was seen to disappear in eight days in a woman with typhoid fever whilst the treatment continued as before.

Solution of calcium creosote has been with the writer a favorite and constant remedy in the following diseases:

In croupous pneumonia and pleuropneumonia, it should be given at two hour intervals without interruption. The high fever of the first day sinks or becomes a normal temperature, on the second where it so remains with cure by abortion or else rising again to a moderate degree continues so for a week or less. Where the administration of the remedy can be started soon after the chill of the onset the disease is often cut short and the cure of a grave malady accomplished in a day or two, is apparent to the patient by the languor and weakness of his convalescence which persists for one or two weeks. Whilst absolute confidence is felt in the treatment of pneumonia with this remedy yet from habit or other cause the writer as a custom associates with it the use of hot water bags applied to the posterior thorax and refilled every five hours, and, *incredibile dictu,* in infants and small children, with the faith of old women, the flaxseed meal poultice.

In pneumonia, calcium creosote cuts short the disease, lowers the fever, slows the respiration and pulse, facilitates and increases the cough and very probably acts as a pulmonic antiseptic. As dispatch and constant ministration are necessary for a rational result and cure, sedatives and hypnotics as harmful to labored breathing should never be given.

Typhoid fever is very successfully treated with calcium creosote. The average duration for all ages is 15 days. Many cases yield in 7 to 9 days. The patient is kept in bed, a nurse attends constantly. Extraneous impulses and excitement are disbarred. He receives a milk diet and drinking water

liberally. The use of the bed pan is never omitted. He is given the creosote every two hours day and night until the fever declines. When the night begins to offer long and refreshing sleep, his rest is not disturbed by awakening him. During the immediate apyretic end stage, four doses are required each day.

In typhoid fever calcium creosote acts as an efficient non-poisonous antiseptic to the mouth cavity, stomach and intestine. It deodorizes and disinfects the stools. It slows and strengthens the pulse, deepens the respiration, refreshes and revives the patient. Prevents toxemia and delirium, reduces the fever in three days, makes the hyperpyrexia innocuous and stops the disease in one-half the time of its natural course. It reduces the mortality to the lowest number. As the deaths are lessened, so are the many complications, and above all do intestinal hæmorrhage and intestinal perforation diminish, they may even be said to cease to occur.

Any treatment that cures needs the aid of none other and therefore with calcium creosote in typhoid fever other drugs are not exhibited or other means of fever reduction.

Its great efficiency is shown in the total abrogation of the cold water bath, packs and sponging. The first especially is abhorrent to all patients, past or present and a work of arduous toil for nurses.[1]

Cholelithiasis has received both medical and surgical treatment. The latter of late years with great benefit and brilliancy. An operation is indicated where medicinal remedies fail or where constantly recurring attacks of hepatic pain, fever, jaundice, indicate active progression. Operation is needed where any of the sudden or pronounced complications appear or are frankly suspected, as cholesystitis, gall-bladder adhesions with pain and stenosis chronic obstruction of the cystic or common duct, perforation, peritonitis, purulent cholangeitis and liver abscess. The indications for operating are numerous, frequent, and almost always sufficiently clear. Surgical relief of gall-stones is, however, very often refused either from great fear or prejudice.

It was amongst this class of patients that calcium creosote was first tentatively tried and soon by repeated examples it became evident that in gall-stone subjects of the severely active types with frequent attacks of colic, jaundice, fever with or without chills; much emaciation, the peculiar blanched facies of those not jaundiced, with gall-stones obviously producing a slow chronic infection, with enlargement of the liver, tenderness of gall-bladder and epigastrium, in all such cases refusing surgery the calcium creosote has been found to be of great value. It seems to make all active symptoms quiescent. The patient resumes his journey of life no longer harrassed by his burden.

The solution is given four times a day and may be continued for months. A liberal milk diet is a valuable aid as the anomalous dyspeptic symptoms of gall-stones soon abate with its use. Calcium creosote seems to act as an anti-

[1] A fuller description of this treatment can be found in the Monthly Cyclopædia and Medical Bulletin, vol. ii, 1909, page 65.

septic to the stomach, upper intestine and bile tracts and thereby prevents the continuance or recurrence of the septic fevers of the disease. In what other way to explain the remarkable clinical efficiency of its action is obscure. It is not a solvent of hepatic calculus in vitro.

The following cases are instances from practice:

Case I.—A woman of 55, whose menstruation ceased at 50, had a first attack of hepatic colic with jaundice four years before. For two years thereafter her health was good. Then the hepatic colic reappeared of great severity and frequency, the subsequent jaundice was prolonged, so that fresh attacks of acute pain would set in before the color of the skin had returned to normal. The later attacks were followed by chills of regular or irregular type, and lengthened fevers, of high or low variety. The febrile infection persisted for the greater part of three months. Before and during this time the history of the case was reviewed and careful physical examination made by several surgeons who suggested speedy operation. The patient declined to submit, fearing the risk to life. She was then in a bed-ridden state, much debilitated. Her original weight of 212 pounds was reduced to 140. In this condition the use of calcium creosote was begun and continued for nearly six months, during which time her health was good and her recovery astonishingly rapid.

Case II.—An old woman had at long intervals mild paroxysms of hepatic colic with faint jaundice at times, simulating attacks of acute indigestion. Further on the painful seizures reappeared every week or two lasting from an hour to a day, producing nausea and vomiting and accompanied with a heavy chill and a high fever (105° F.), with dilirium and unconsciousness. The liver and gall-bladder fundus were tender. She becomes debilitated and helpless. The thought of surgical aid was beyond the fortitude of the family to endure on account of the patient's feebleness and great age, she being beyond 90 years. The calcium creosote was given; in the succeeding five months there was one mild attack and no further disturbance which could be ascribed to the active irritation of gall-stones.

In *scrofula,* calcium creosote is an efficient remedy. In tuberculous diseases of the bones and joints in children and young people it is also of great value. In Pott's disease of the spine, hip-joint disease, in white swelling of the knee-joint, great improvement has been repeatedly observed.

In *scrofulous nasal catarrh,* its action is good. In tuberculous lymphatic glands particularly of the neck all reliance is placed on it to the total exclusion of surgical extirpation. Calcium creosote has also been successfully used in cases after operation where persistent sinuses remained from infiltrated connective tissue or what is common enough, a new progeny of glandular swellings along the lines of incision.

In *scrofulous keratitis* its action in healing is beautifully rapid and sure. To the skeptic in drugs, to the mystic or superstitious the curing of such obvious lesions is a silencing argument of the virtue of therapy. In these painful corneal ulcerations no local treatment is needed. Where the diet can be enriched that should always be done.

In tuberculosis of the viscera, the mucous and serous membranes above all others in pulmonary tuberculosis the writer has not observed any beneficial effect on the unfavorable progress of the disease or in the abatement of any of the severer symptoms. Not so, however, in the pretubercular state. This is very common amongst young people, many later on becoming victims of the parent cause, others carrying their debility to old age. The classic description of the tuberculous habit need not be too closely followed in the recognition of this state. Proof sufficient is had where parents, or grandparents, died of phthisis. The body weight twenty pounds under normal of age and sex. The mucous membrane pale and dry, the skin white, the small veins visible. Whilst not sick these subjects are never well in feeling and constantly present minor symptoms of ill health. Chronic nasopharyngeal catarrh is excessively common. They are very prone to catch cold, to catarrhal inflammation, dyspepsia, constipation and often a latent chronic enteritis; migraine attacks of a severe form. To premature graying of the hair—to chronic lesions of the skin. They are prone to pneumonia in youth.

The solution of calcium creosote corrects the dyspeptic disturbances, aids digestion and nutrition. Its immediate effect is that of a non-intoxicating exhilarant. Patients declare they feel better as long as they continue to take it. It increases the appetite, the vigor and weight of the body. The various chronic affections of the pretubercular state, diminish or cease to be. In frail children it will be found to be taken with avidity.

In the *summer diarrhœa* of infants it is usually a very efficient remedy. It must be given early and in oft repeated doses and in all cases with the prompt correction of the offending food or diet.

Dr. Hall has more particularly observed the action of calcium creosote in appendicitis not demanding section. In a number of cases there was prompt abatement of pain, tenderness, gastric disturbance and fever. Frequent doses are necessary.

Also in hæmorrhoids it is a good palliative. It corrects the itching and stops the bleeding. When inflamed, the pain and local discomfort are relieved. The pile tumor itself has been seen to shrink or disappear altogether. These various diseases represent what has been learnt by a long use of solution of calcium creosote in their treatment.

This form of creosote possesses perhaps other virtues than those here described and may be found to be very useful in other systemic affections and local pathologic changes, not alone by its internal administration but by topic application.

Dermatology seems to be a field inviting a fair and varied trial. What has so far here been said, is offered, confident of success in its use to practitioners of medicine and clinicians.

THE TREATMENT OF THE STOKES-ADAMS SYNDROME.*

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The title of this paper may be misleading in that there is, strictly speaking, no treatment of a syndrome, but rather, of the underlying lesions of which the syndrome is the expression, and of the patient presenting these symptoms.

Definition.—The syndrome consists of (1) bradycardia, (2) cerebral attacks and (3) pulsation of cervical veins in excess of pulse rate (Stokes, 1846; Adams, 1827).

Pathology.—In a few cases so-called uræmia may be present. The symptoms suggest vascular disease of the cerebrum analogous to intermittent claudication (Huchard, also Gibson and Jacquet, 1904) or disease of the medulla (Charcot). It may be the result of various infections, intoxications or, possibly, of prolonged use of digitalis.

Pathological anatomy.—Stokes' original opinion was that there was always (1) organic disease of the heart muscle. Some instances were inexplicable after careful *post-mortem* examinations, and so remained until the suggestion of Gaskell's bridge (1883) and the discovery of the column (bundle) of His (1893) and the work of Erlanger (1905, also Humblet and Hering) who demonstrated the results of interference with it. To (1) should be added (2) localized disease of the column of His which may be sclerotic change in the endocardium, gumma, cartilaginous tumors, fatty infiltrations, with atrophy, or endarteritis in its artery, and (3) dromotropic inhibition of pneumogastric resulting from various lesions.

Symptoms.—To those cited in the definition of the syndrome, others must be added:

1. Cardiac; precordial oppression, pallor, anginal pain, sweating, syncope.

2. Cerebral; consciousness suddenly and completely lost, vertigo, epileptiform convulsions often preceded by an aura (olfactory gustatory, auditory or tactile), apoplectiform attacks not followed by paralysis during or after them.

3. Respiratory; stertorous breathing, rarely apnœa, sometimes Cheyne-Stokes breathing. Lassitude after the attack is pronounced.

Signs.—Palpation of the cervical veins will show a difference between their pulse-rate and that of the radial artery. The stethoscope will determine auricular systoles in greater frequency than the ventricular, and, finally, the fluoroscope will give visible confirmatory evidence.

Diagnosis.—Strictly speaking, the Stokes-Adams syndrome should not include those instances of bradycardia due to infections or intoxications. If

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* Read before the American Therapeutic Society, at its Tenth Annual Meeting, at New Haven, Connecticut, on May 8, 1909.

these can be excluded and arteriosclerosis, especially of the coronaries, is believed to exist, the diagnosis should be clear.

Prognosis.—This is uncertain, many die in the attack. Others recover and may live for years. If a syphilitic history is obtainable, the outlook is much more favorable.

Treatment.—(1) Prophylactic; avoidance of fatiguing exercise, emotional excitement, ingestion of copious and indigestible food, all of which have been assigned as valid causes. (2) Mechanical; if cerebral symptoms are associated, the body should be inverted, since, in some instances, bulbar anæmia may cause heart block. (3) Medicinal; this must be based upon Erlanger's observations which demonstrate that, in complete heart block, stimulation of the vagus has no effect, but when the accelerator is stimulated, the rate of both auricular and ventricular systole is increased. This rate is not affected by variations of general blood pressure, by asphyxia or interference with the coronary circulation. This would seem to exclude the use of the glyceryl nitrate group, which is not successful, and the digitalis group, which would likely do harm. Of the remedies which increase the rate of cardiac beat, those mostly studied as to their effect on the ventricle, are atropine, (hyoscyamine daturine, duboisine), cocaine and saponin. The following which also increase its force, ammonium salts, alcohol, (ether, chloroform), cactus, arsenical salts, quinine and strychnine, should be cited. Drugs which are known to act upon the accelerator centre are ammonia, caffeine, picrotoxin, cactus and staphisagria. Obviously, many of these drugs present disadvantages, or are not of pronounced action, so that they may be excluded from consideration.

Usually a combination of atropine for diminishing the tone of the vagus terminations, in conjunction with strychnine for increasing the force and frequency of the ventricular systoles, has been advocated. Of course, atropine is useless in affections of the myocardium of which the syndrome is the expression. Alcohol has at times, apparently shortened the duration of the attacks. Theoretically cactus, which is found to both increase the force and rate of ventricular systole, as well as to act on the accelerating centre, is indicated. Practically, in those instances in which I have employed it, recovery from the attack and subsequent attacks, has taken place. In the urgency of the symptoms, and they so appear, it should be preceded by ammonia and the gravity of the syndrome warrants its use by hypodermatic injection. The fluid extract is the only preparation of cactus which is recommended and active specimens are readily obtained at the pharmacies. The dose is thirty minims every hour or two, so long as may be required. After the acute attack is under control, it is well to administer arsenic iodide, in doses of one one-hundredth to one one-fiftieth of a grain, thrice daily, for a considerable period of time.

Since gummata have been frequently found on *post-mortem* examination, involving the column of His, inunctions of oleate of mercury, or better, for immediate results, hypodermatic injections of red mercuric iodide, in one per cent. solution in sterilized oil, in one-fourth grain doses daily should be administered. The insoluble mercury salts have not yielded so favorable an

outcome in my hands. In these instances mercury is useful no matter how much time has elapsed since the primary lesion. In addition to, and contemporaneous with, the mercury, strontium iodide should be administered, increasing up to massive doses.

In addition, a careful study of the patient should be made, and all other pathological conditions carefully studied and, so far as is possible, rectified.

THE STANDARDIZATION OF MATERIA MEDICA PRODUCTS.

By F. E. STEWART, Ph.G., M.D.

As usually employed, the term standardization applied to materia medica products, means their adjustment to chemical and physiological standards.

The meaning of the word "standard" as defined in the dictionaries permits a much wider application to the term.

According to the Standard Dictionary, I am justified in using the term to include the comparison of materia medica products with any "type," model, example, thing or circumstance forming a basis for adjustment; a criterion of excellence."

Before the Pure Food and Drugs Act of June 30, 1906, went into effect, conformity with the standards of the Pharmacopœia was purely voluntary. This gave an excuse for certain manufacturers to set up standards of their own.

In addition to these variations due to neglect to conform with Pharmacopœial standards, cases of wilful adulteration were common.

This unfair competition made it very difficult for honestly disposed manufacturers to get living prices for their goods, and some manufacturers justified themselves in adopting questionable methods to hold their trade.

Pure Food and Drug legislation has done much to change all this. The enforcement of these laws is gradually driving out unfair competition. Honestly disposed manufacturers are everywhere rejoicing. Now it is possible to get better prices, which permit the employment of experts for standardization. The quality of materia medica products on the market is steadily improving in consequence. We have a right to be proud of the work of our fellow member, Dr. Harvey W. Wiley, for his services in this connection.

The subject of materia medica standardization embraces a much wider scope than is usually realized either by the medical profession, pharmacists, manufacturers or the public. Many problems are involved scientifically, professionally and commerically. Conflicting interests are opposed to the standardization of the materia medica, and are exerting enormous pressure to prevent it except in so far as it promotes individual commercial interests. The altruistic idea that all materia medica products under the same names should be reduced to common standards, that such standards should be maintained by manufacturers, wholesale and retail, and that those refusing to conform with standards, should be punished by fines and imprisonment, is

repugnant to the commercial interests of a large number of manufacturers, including both retail druggists and wholesale manufacturing houses. Moreover, the educational interests of medicine and pharmacy are involved; the fate of the medical and pharmaceutical press is influenced by the development of the subject; the legal fraternity is mightily interested because of the relations which the patent and trade-mark laws bear to commerce in materia medica products. Pressure is constantly being brought upon Congress and also upon the State legislatures, to modify laws relating to adulterations of drugs and want of conformity with established standards. The question of laws for the protection of the public from unlicensed practitioners of medicine and pharmacy who are practicing at wholesale and at long range without diagnosis, is also a part of the subject. The fraternity engaged in this kind of practice is wealthy, powerful and influential, and is not leaving a stone unturned to confuse the issue.

Taking these facts into consideration, I have chosen an excipient for the purpose of working up my material into a mass and making it into sugar coated pills so that you can take it without realization, hoping that the results may be beneficient and prove of value to the public by stimulating the society to use its growing influence in behalf of materia medica standardization.

The vehicle I have chosen is in the form of a personal narrative of the experience of the author in a life work devoted to promoting the cause of materia medica standardization.

As a graduate of the Philadelphia College of Pharmacy, class 1876, and the Jefferson Medical College, class 1879, I had occasion to approach the subject of materia medica standardization from both commercial and professional sides. My intent upon entering the medical profession was to make a specialty of materia medica research, publishing the results of investigation for the benefit of science, and securing an income from the manufacture and sale of materia medica products, either as a stockholder in a corporation established for the purpose, or through the agency of some manufacturing house already in the field.

The plan was very similar to the one taught by colleges of pharmacy, which is to the effect that pharmacists belong to a fraternity, in which the inventions and discoveries of its members are donated to the common good of the profession, said profession of pharmacy to practice as a branch of the medical profession, and in harmony with its professional and scientific requirements.

My first introduction was Rectal Gelatin Suppository Capsules, described in my graduation thesis and afterwards published in the Medical Record. The capsules were not patented, and, being commercially attractive, were immediately appropriated by the manufacturers without giving me any credit. This was a lesson in favor of commercial control over new materia medica products.

My next introduction was Desiccated Bullocks Blood, which brought me in contact with a well-known pharmaceutical house through its New York agents. I introduced this product to science through the columns of the

Medical Record, and the Medical and Surgical Reporter. The house referred to introduced it to commerce through the medium of its house organ, detail force, advertising literature, and advertisements in the medical journals. The proper introduction of materia medica products to science and brands of the same to commerce thus became a subject of vital personal interest.

After making arrangements for the commercial introduction of Desiccated Bullocks Blood, I returned to New York City and went into the practice of medicine. At the request of the house referred to, I then called upon some of the leading physicians of the City with their samples, literature and house organ. The house was making a specialty of introducing new drugs commercially in the form of fluid extracts, and the literature sent out consisted of reprints from their house organ of articles relating to the therapeutic action of the products collected by their detail men from all over the United States. My New York medical friends after examining the literature said that in their estimation it represented the worst form of quackery. I, therefore, went to Brooklyn and consulted Dr. Squibb for the purpose of ascertaining the reason for the unsatisfactory condition of affairs existing in the materia medica supply business. Dr. Squibb gave me a most cordial reception, and in an interview lasting more than two hours opened up the true condition of affairs.

I found that Dr. Squibb was engaged in the practice of the pharmacologic arts for money, just as physicians are engaged in the practice of therapeutics for money, yet he was practicing his profession in a perfectly professional manner. Therefore, the ideal I had set up for myself was both practical and professional.

My next move was to read a paper on this subject before the Tri-County Medical Society, at Glen Falls, New York, and I afterward accepted an invitation to discuss the subject before the Albany Academy of Medicine. I then consulted leading scientists, medical editors, and professors of medical and pharmaceutical colleges. Scientists considered the subject as of commercial interest only, and therefore outside of their field of interest. Publishers preferred things as they were for obvious reasons. The colleges of pharmacy and retail druggists were opposed to any plan likely to benefit the large manufacturing houses. The house engaged in commercially introducing desiccated blood, strongly advised me to let sleeping lions alone. However, I had made up my mind to go on with my work, and therefore consulted Prof. Charles Rice, afterward chairman of the committee for revising the Pharmacopœia, who, at my request, devised a technical name for Desiccated Bullocks Blood, and it was placed on the market under the title "Sanguis Bovinus Exsiccatus."

It now became important to devise a system for the scientific introduction and standardization of materia medica products, and their commercial introtion, protective alike to science and commerce. I found that the field of commercial introduction was practically under the control of the so-called proprietary medicine business, and that the system used for maketing products was diametrically opposed to scientific and professional requirements; that it was a misconception of the patent law, an abuse of the trade-mark law, and inimicable to the public interests.

Judging from my own experience with the Rectal Capsules, it was apparent that some system should be adopted for the protection of capital invested in the medical and pharmacal industries. I could see no reason why Materia Medica inventors should not be rewarded with patent grants just as medical writers are rewarded with coypright grants, provided the products themselves were open to competition and introduction to science by means of impartial discussion, classification, and standardization.

My position on this subject was the same as that of Terrill as given in his treatise on Patent Laws:—

> "The theory upon which these laws rest is that it is to the interest of the community that persons should be induced to devote their time, energies and resources to original investigation for the furtherance of science, the arts, and manufactures. This was recognized from the earliest periods which can pretend to be described as civilized. It is to the advantage of the whole community that authors and inventors should be rewarded, and no measure of reward can be conceived more just or equitable, and bearing a closer relation to the benefit conferred by the particular individual, than to grant him the sole right to his writing or discovery for a limited period of time."

While studying this subject I was invited to contribute a paper to the section on Materia Medica and Therapeutics, of the American Medical Association, on the "Materia Medica of the Future," to be read at the Richmond Meeting in May, 1881. After reading this paper Professor Dunster, of the University of Michigan, offered the following resolution of my devising:—

> "*Resolved*, That it is contrary to the spirit of the code of ethics for a physician to prescribe a remedy controlled by patent, copyright or trade-mark. This shall except, however, a patent upon a process or machinery for manufacture, and also except the use of a trade-mark, provided the article so marked is accompanied by a working formula, duly sworn to, and a technical name under which all may manufacture and sell the same article."

This resolution was referred to the Judicial Council and rejected, because it recognized Materia Medica monopoly by process patents.

I have no reason, after a study of this subject since 1880, to change my mind except to recognize what I did not then recognize, the necessity of keeping the practice of the pharmacologic arts under professional control where it properly belongs. Granting patents to unlicensed practitioners protecting them in carrying on a business in medicine conducted in competition with the medical and pharmaceutical professions, and using misleading methods of advertising to create a demand for their products, is inimicable to the public welfare.

To protect the practice of the pharmacologic arts, the following legislation was suggested by the Supreme Court of the United States in its decision in the case of Worden *vs.* California Fig Syrup Company, No. 35, October Term, 1902:—

> "Most, if not all, the States of this Union have enactments forbidding and making penal the practice of medicine by persons who have not gone through a course of appropriate study and obtained a license from a board of examiners; and there is similar legislation in respect to pharmacists. And it would seem to be inconsistent and to defeat such salutary laws, if medical preparations, often

> and usually containing powerful and poisonous drugs, are permitted to be widely advertised and sold to all who are willing to purchase. Laws might properly be passed limiting and controlling such traffic by restraining retail dealers from selling such medicinal preparations, except when prescribed by regular medical practitioners."

It is manifest that under the protection of proper medical and pharmacal laws to protect the field of pharmacology from dishonest commercial exploitation, and a proper ethical code for the guidance of physicians, pharmacists, and manufacturers in their relations with each other, and with the public, enforced by a board of control, or bureau, representing these several interests, it would be safe to open the educational channels of medicine to the discussion of the newer materia medica. I therefore commenced to advocate such a plan.

My next move was to present the plan above mentioned to the Smithsonian Institution. This occurred immediately after the A. M. A. meeting in 1881. The plan as presented included an investigation of the materia medica of the world under the auspices of the United States Government, aided by the medical departments of the Army, the Navy, and the Marine Hospital Service. It included the establishment at Washington of a National pharmacologic laboratory, the organization of a National Pharmacologic Society of physicians and pharmacists, and the founding of scientific departments by the great commercial houses engaged in the chemical and pharmacal industries to co-operate with the work.

A Bureau was to be established under the control of the Smithsonian Institution, and experts in the pharmacologic arts employed for carrying on the work. Materia Medica products were to be collected from various nations and tribes, and placed on exhibition in the National Museum. Those found worthy of investigation were to be scientifically examined, and the information thus evolved issued by the Bureau to the medical and pharmaceutical professions and manufacturing houses in the form of Working Bulletins, accompanied by material for a collective investigation embracing botany, pharmacognosy, pharmacy, pharmacodynamics, and therapydynamics.

To aid in this work it was proposed to publish a monthly journal and annual report.

The plan was approved by the Surgeon Generals of the Army, Navy, and Marine Hospital Service, also by the President of the National Board of Health and the Director of the Army Medical Museum. It was endorsed by the Alumni Association of the Philadelphia College of Pharmacy in 1882, and favorably discussed by the Philadelphia County Medical Society in 1884.

The plan was again approved by the Smithsonian Institution in 1884, but on account of the lack of funds it could not be carried out. It was also approved by Prof. H. G. Beyer, Curator of the National Museum, in a letter written to me October 11, 1885, in which he said, "I think your conception of establishing a Bureau or Department of Pharmacology under the Government a grand one, and no doubt one that ought to be carried out. We have here all sorts of scientific Bureaus, and it seems to me not one which is calculated to be of such immediate benefit to mankind as a Department of Pharmacology would be to

the American people, not to speak of the immense scientific value it would be to medicine and pharmacy. I, for one, should certainly hail the inauguration of such an institution with great delight; it is exactly what I have been having in mind for the last year and a half."

In 1891 the American Medical Association memorialized Congress in the following words:—

> *"To the Honorable Senate and House of Representatives of the United States, in Congress assembled—Greeting:*
>
> "We, the officers and members of the American Medical Association, in pursuance of a resolution passed at a session of the annual meeting of said association, held in the city of Washington, D. C., May 8, 1891, crave the attention of your honorable body to the following memorial:
>
> *"Resolved,* That the Government of the United States be memorialized by the American Medical Association in favor of the plan proposed by Dr. F. E. Stewart, whereby the valuable work of the laboratories of the Army, Navy, Marine Hospital Service, Smithsonian Institution, Customs Service, Agricultural Department, and other departments of the public service, in the line of the identification of drugs, may be facilitated and made of more general utility, by the publication of their results, so that the information thus gathered may be disseminated for the general benefit of the professions of medicine and pharmacy.
>
> "Acting in accordance with the above resolution, we herewith hand your honorable body the paper of Dr. F. E. Stewart referred to, hoping that you will devise some means whereby the valuable suggestions therein contained may be carried into effect, believing that they are calculated to promote progress in the science of medicine and the useful arts of medicine and pharmacy, and thus prove of great benefit to the American people."
>
> (Signed)
>
> HENRY O. MARCY,
> *President of the American Medical Association.*
> W. B. ATKINSON,
> *Permanent Secretary of the American Medical Association.*

The American Pharmaceutical Association, in 1896, appointed a committee on national legislation to consider the question of Materia Medica monopoly, of which I was Chairman four years. The reports of the committee were published in the Proceedings of the A. Ph. A. for 1896-'97-'98, and '99, and contain important data supplied by leading members of the bench and bar.

As a result of this work a document, known as "Preamble and Resolutions," expressing the opinion of the A. Ph. A. on the subject of materia medica monopoly, was adopted and sent out to the A. M. A. This document embodied the views expressed in the resolution offered at the Richmond meeting of the A. M. A. in 1881, above quoted.

The *Journal of the American Medical Association,* in its issue for April 27, 1901, published my paper, entitled "Proposed National Bureau of Materia Medica," and editorially endorsed the plan.

In a letter from the editor dated March 19, 1901, he says: "I have just read your excellent article, and I must say that I am surprised and delighted at the way you have handled the subject."

An association of physicians and pharmacists was organized in the city of Los Angeles, California, October 14, 1901, "to promote the public welfare by establishing a National Bureau of Materia Medica, to be supported by the physicians and pharmacists of America, by means of a National Pharmacy Company, acting as manufacturers' agents or manufactures, and dealing in medicines which conform to the standards of the United States Pharmacopœia, and other recognized standards."

The bureau was then incorporated under the laws of New Jersey by the Hon. James B. Dill, now Judge of the New Jersey Court of Errors and Appeals, under the name "National Bureau of Medicines and Foods." The National Pharmacy Company was also organized, and among the stockholders were some of the principal physicians and pharmacists of the Pacific Coast.

(To be concluded in our next issue.)

THE ADRENAL PRINCIPLE AS THE MAIN ACTIVE AGENT IN PITUITARY, TESTICULAR, OVARIAN AND OTHER ANIMAL EXTRACTS.*

By CHARLES E. de M. SAJOUS, M.D.,
PHILADELPHIA.

(Concluded from the May number.)

Beginning with the pituitary, the prevailing belief that it is the source of an internal secretion has led to the therapeutic use of extracts of this organ. I am inclined to believe, however, that it does not secrete anything and that all the phenomena it awakens in the body at large, are provoked through the instrumentality of nerves which connect it with the adrenals, the thyroid and the vascular system.

In a case reported by E. Wasdin, of the Marine Hospital Service,[7] a fall had caused a compound fracture of the left maxilla. Although the wound was clean and normal and cultures showed that no bacteriæmia was present, the temperature rose to 104° F., and various symptoms appeared, including, on the seventh day, bronzing of the skin. This was followed by death on the twenty-first day, its direct cause remaining obscure. Having, some time later, become familiar with my views to the effect that the pituitary body contained the center which governed the adrenals, Dr. Wasdin was led, by the bronzing, to suspect an injury of the pituitary. On consulting the records of the autopsy, he found that there had also been fracture of the sphenoid involving the sella turcica, the pituitary being gangrenous and destroyed. The evidence in favor of my belief that the pituitary body, in man, is not a secreting gland, but a great epithelio-nervous organ which controls through nerves to

* Read by invitation before the Medical Society of Kings County, Brooklyn, April 20, 1909.

the adrenals and thyroid, general oxygenation, metabolism, and nutrition, is sustained by considerable evidence, while, conversely, the prevailing view that it secretes a product that is of physiological use is based solely on the fact that pituitary extracts are active. But these effects do not prove that the organ is the source of a specific internal secretion. They correspond precisely with those of adrenal extracts, *i.e.*, a rise of blood-pressure, slowing and increased power of the heart-beats and diuresis. The dilatation of the kidney observed by Schäfer is itself nothing but the result of the intense hyperæmia of these organs, the result in turn of the rise of blood-pressure in the body at large caused by the adrenal substance the pituitary extract contains. Even the local phenomena of the adrenal principle are obtained with it. Golla,[8] for example, found that a three-minim solution prepared by him, injected into the buccal mucosa, caused a large area to become blanched and to remain so forty-five minutes.

The therapeutic use of pituitary extract has not, so far, given results that cannot be obtained from adrenal extracts. In fact, it can hardly be considered, as yet, as possessed of any clearly defined therapeutic value. We have no sound clinical criterion upon which its comparative indications can be based. This applies also to the chemistry of the pituitary product which has so far received but little attention. Not so, however, with the next agent considered: the testicular preparations.

The prevailing opinion, at the present time, is that these agents owe their beneficial effects, not necessarily to an internal secretion, the existence of which is not denied, but to nucleo-albumins, substances that are rich in phosphorus, resembling greatly lecithins and glycero-phosphates. This applies mainly to the extracts, known under the names of didymin, orchitin, etc., which have been used with more or less success in neuroses, especially tabes, neurasthenia, impotence, and paralysis agitans—all disorders in which glycero-phosphates and the like have given good results. The fact that beneficial effects have also been noted in obesity, eczema, psoriasis and other disorders in which either thyroid and adrenal extracts are of distinct value, suggests that both of these substances are present in testicular preparations, besides the phosphorus-laden nuclear products to which their main therapeutic value is ascribed. The actual presence of the adrenal principle becomes evident when the identity of the one testicular product which has given the best therapeutic results is sought.

The purest of testicular products—that known as spermin—was isolated by the late Professor Poehl, of St. Petersburg. It has not only given better results than the ordinary orchitic preparations, but they were obtained in the same disorders as those in which the ordinary extracts had been employed.

That spermin is unquestionably identical to the adrenal secretion is shown by many facts. It is an oxidizing body which acts catalytically, it gives the guaiac and Florence's hæmin test, thus showing that it is a constituent of hemoglobin; it is unaltered by boiling, and presents other characteristics of the adrenal principle, besides producing all its physiological effects. Proof

that it is an ubiquitous constituent of the organism at large is further shown by the fact that it is found in the blood of females as well as in that of males. Finally, the class of disorders in which it has been employed with benefit have all been such as would be equally benefited by adrenal preparations. Spermin, in fact, is now regarded in Europe, in accord with the views of Professor Poehl, as a powerful oxidizing tonic.

The ovarian preparations indicate as clearly their dependence for their therapeutic action upon the adrenal principle they contain. Wilcox[9] writes, referring to ovarian extract: "But little is known of its pharmacological action. Fresh ovarian extract is said, when injected in rabbits, to raise the blood-pressure, diminish the heart's action and slow the respiration; and when administered to the human female also to increase the arterial tension. In the castrated animal it is found to increase oxidation to somewhat above the normal degree." I may add that removal of the ovaries in sluts lowers their temperature, while the administration of ovarian extract in these animals restores it to normal. Moreover, ovarian preparations enhance metabolism, increase diuresis and the excretion of urea and phosphoric acid—all effects also produced by the adrenal products. Finally, their action has been found to correspond with that of spermin.

Therapeutically, ovarian preparations have been used with more or less success, mainly in disorders attending or following menopause, and in those met after removal of the ovaries. We have seen that they enhance oxidation and metabolism, the underlying cause of the morbid phenomena. This is further shown by the fact that they have likewise been found of value in disorders due to deficient catabolism, such as obesity, gout and epilepsy, and in the anemias characterized mainly by deficient hemoglobin and the disorders of menstruation associated therewith.

These few examples will suffice, gentlemen, to illustrate the general principle I wish to submit to you, namely: that it is not because we obtain physiological effects from the extracts of any organ, that we must conclude that it produces a specific internal secretion. I have ascribed this prerogative to two sets of organs only so far, the thyro-parathyroid apparatus and the adrenals (the glycogenic function of the liver and the production of pancreatic ferments being deemed other than internal secretions), because these alone present the true attributes that warrant their being considered as such. Their true secretions have been traced from their tissues into the blood, and their rôle therein, if my labors and steadily accumulating confirmatory evidence mean anything, has been clearly determined. Their presence in every tissue endows that tissue with the attributes of these joint secretions, and what effects are produced therefore, seem mainly ascribable to what proportion of these secretions they contain.

We do not witness phenomena which can be ascribed directly to the thyroid secretion it is true, but it becomes a question whether, in view of the other functions I ascribe to this secretion, the effects we obtain from what has, until recently, been termed therapeutic doses—the so-called average dose

of 4 grains of the U. S. P. for example—do not in reality evoke toxic phenomena, and that normally such a thing as vasodilation through the thyroid secretion never occurs. This involves the conclusion that we must look upon the small proportion of thyroid secretion in organic extracts as having but one purpose, that of enhancing the oxidizing property of the adrenal substance.

Admitting with me, then, that the purpose of the adrenal and thyroid secretions is to provide for and sustain metabolism, what general phenomena we can expect from the organic extracts are precisely those witnessed. In other words, we obtain by means of certain organic extracts increased metabolic activity and benefit in any disease in which metabolism (both anabolism and catabolism) is retarded, simply because the substances which normally sustain it, the adrenal and thyroid secretions, are artificially increased in the blood. In this, it seems to me, lies the secret of the action of organic extracts.

Of course, certain extracts are far more active than others, testicular and ovarian extracts for example. But special provisions are made for these organs in order that they may be amply supplied with the adrenal principle. They are not only provided with special cells calculated to increase the proportion of adrenal product—owing probably to the importance of their rôle in Nature—but a close homology has been found by Schäfer and others to exist between the interstitial cells of these organs and the corresponding cells in the adrenals. Moreover, all three sets of organs, the ovaries, testicles and adrenals, are derived from the Wolffian body.

I have taken as illustrations the three most prominent organic extracts. But, I may add that spermin, essentially the adrenal oxidizing substance we have seen, gives the same results as kidney extracts. Placenta even, can excite metabolism; but as Dixon[10] wrote recently, referring to investigations by F. Taylor and himself: "We have shown that the human placenta contains a considerable amount of a substance which is . . . . unaffected by boiling. This body has the property of powerfully constricting blood-vessels, of contracting the uterine muscle, and of raising the blood-pressure." . . . . "So far as we have been able to determine this body has all the properties of adrenalin."

On the whole, it seems to me that there is enough evidence available to warrant, at least as a working proposition, the conclusion that *certain organic preparations, of which the pituitary, testicular and ovarian extracts are types, owe their therapeutic activity, not to any specific internal secretion derived from the organs from which they are obtained, but to the presence in them in relatively large quantities of substances common to all tissues: the adrenal and thyroid secretions. As these substances jointly sustain tissue oxidation and metabolism, the animal extracts containing them are indicated in disorders due to inadequate metabolic activity.*

I would add that experience has shown that *small doses of the above-mentioned animal extracts hasten anabolism and thus enhance general nutri-*

tion and the activity of all reparative processes, while large doses enhance catabolism, the formation of waste products and denutrition.

Does this mean that the physiological effects I ascribe to the adrenal and thyroid secretions are to be considered as the only ones obtainable from the various organic extracts enumerated? I formulate this question only to emphasize the fact that it must be left *sub judice* and as an object for further research. All I have tried to show, is that the gross phenomena evoked by these preparations, and doubtless *some* of their beneficial effects are, in all probability, due to the products of the essential ductless glands, the thyro-parathyroids and the adrenals, acting jointly.

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Cyclopædia of Current Literature

ADENOIDS, NOCTURNAL INCONTINENCE, AND THE THYROID GLAND.

Fifteen cases of nocturnal enuresis are reported by the writer. Adenoid vegetations can no longer be regarded as a cause of nocturnal enuresis, the adenoids affording some measure of protection from nocturnal accidents of this nature. When the two conditions are associated, which they often are, they are both due to a common cause—namely, insufficiency of the internal secretion of the thyroid gland. This insufficiency accounts for the vast majority of cases of nocturnal enuresis in children, as shown by the fact that the exhibition of thyroid extract will in a comparatively short space of time effect not only a cure of the enuresis but a great amelioration of many coexisting evidences of ill health. In the author's cases belladonna and hyoscyamus, which constitute the sheet anchors of the text-books, have not played any part in the treatment. Where it was thought desirable to employ anything in addition to the thyroid extract, these additions have consisted of tonics such as iron, arsenic, and iodine. The very remarkable improvement in the general health of his patients under treatment for enuresis by thyroid extract induced him to try the effect of the drug on two or three children who suffered from debility due to other causes. The writer found that his patients who had not suffered from nocturnal enuresis, under the new treatment with thyroid extract, now had noc-

turnal enuresis. He comes to the conclusion that the thyroid secretion is a regulator of the mechanism by which urinary incontinence is controlled, an excess of the secretion being almost, if not quite, as deleterious as an insufficiency. In the treatment of enuresis by thyroid extract the question of dosage is therefore not only of paramount importance, but also of the utmost delicacy. It is essential to success that the initial dose should be very small; that this dose should be increased very cautiously, if at all; and that the minimum dose which experience proves to be productive of good results should be steadily persevered with, reinforced, if necessary, by such tonics as have already been mentioned. Leonard Williams (Lancet, May, 1909).

APPENDICITIS, TREATMENT OF.

It is difficult at times, not to say impossible, to distinguish accurately and positively, between appendicitis and colitis. In some cases, McBurney's point, rigidity, blood-count, symptomatic antecedents, are similar. When all these are identical one or other disease may exist alone. It is frequently the case here, as elsewhere, that two diseases, so far as the mere organ is concerned, may exist together just as is found elsewhere, notably, in uterus and ovaries; in larynx and trachea. Admitting the truth of the foregoing to be wise and prudent, the patient should be treated medically, in what seems the best way to accomplish a cure. This treatment should be: Rest in bed, which means little or no voluntary movement while pains are acute, temperature elevated, and other general symptoms threatening or grave. Ice bag, or preferably hot water bag, or poultices, or stupes with hot water and oil of turpentine and soap liniment; flannel covered, or not, with oil silk or rubber tissue. Laxative enema with castor oil and oxgall, sometimes a little glycerin being added. Flaxseed tea should preferably be the menstruum of the enema. A moderate amount of codeine every hour or two, by mouth, if pains seem to require it, from $\frac{1}{20}$ to $\frac{1}{10}$ or $\frac{1}{5}$ grain. In rare instances only are hypodermic injections of morphine to be given, and then only for excessive pain. B. Robinson (New York Medical Journal, May 1, 1909).

EPILEPSY AND THE BROMIDES.

The writer considers that the value of the bromides in epilepsy has been greatly overrated. The dosage commonly employed is not only excessive, but deleterious when its administration is prolonged. Small doses produce as good results as larger ones. Half of the favorable cases responded to treatment without any bromide being prescribed. When employed without ordering a salt free diet the use of the bromides is almost valueless. Any decided amount of NaCl in the blood acts as an irritant to the cerebrum and increases the frequency and severity of the attacks. While it is not known why the exclusion of salt from the patient's diet is so beneficial in the treatment of epilepsy, it is known that equally brilliant results are obtained by its prohibition in chorea. Less than 10 per cent. of all cases of epilepsy are curable, and only 50 per cent. of carefully selected cases were benefited by prolonged treatment. Wm. Lesem (American Medicine, April, 1909).

EPILEPSY, THE DUCTLESS GLANDS IN.

Results of an examination of the pituitary body, suprarenals and ovaries in fifteen cases of epilepsy are reported. In

three cases the pituitary body showed a localized area of sclerosis. Capillary congestion was present in one. From the distribution of the cellular granules and the staining reactions of the cells and the increase in the colloid material in the above three cases, a hypersecretion of the pituitary body is suggested. The pituitary body in the other twelve cases showed histologic evidence of a decrease of functional activity. In all cases the suprarenals were smaller than normal. In seven cases the histologic picture was distinctly that of hypofunctional activity. In only one case was there evidence of hypersecretion of the gland. With the ovary the changes were not so pronounced, and their significance was more difficult to determine. The ovaries were small and unusually poor in Graafian follicles. An examination of the pancreas, liver and kidney revealed nothing. Claude and Schmiergeld (Comptes rendus société de biologie, vol. lxv., p. 196-199, 1908; Journal American Medical Association, March 13, 1909).

HYPOPHYSIS AND OVARIES, RELATIONS BETWEEN.

A special study has been made by the writer of the relations beween the ductless glands, and he recently reported a case in which a tumor in the suprarenals was accompanied by atrophy of the ovaries and male characteristics in respect to growth of hair, bass voice, etc. In a case described in detail, the loss of ovarian functioning coincided with the development of a tumor of the hypophysis and development of acromegaly. The patient had passed through a normal puberty, had married at 21, and soon after this the menses became irregular and finally ceased altogether, probably as the tumor in the hypophysis began to develop. The first sign of trouble was hoarseness; in a few months vision grew defective and Roentgen examination confirmed the assumption of a tumor in the hypophysis. The symptoms continued a progressive course under hypophysis tablets, but after a few months they seemed to be arrested and the patient has remained in comparatively fair condition during the few months since, and refuses to allow any operation. It seems evident, the writer thinks, that ovarian, rather than hypophysis treatment is indicated in this and similar cases, and the assumption seems plausible that disturbances resulting from excessive ovarian functioning, such as excessive menstrual hæmorrhage, nymphomania and other psychoses, might be combated by hypophysis tablets. The pineal gland must also be considered in connection with the relation between the glands with an internal secretion. Not merely for organotherapy, but also for physiology and pathology these interrelations will surely prove a fruitful field for research. L. Thumim (Berliner klinische Wochenschrift, April 5, 1909; Journal of the American Medical Association, May 22, 1909).

MASTOIDITIS.

At the present time it is impossible to reach an absolutely certain decision regarding the necessity of surgical interference in some cases of affection of the temporal bone. In most cases the groups of symptoms, and in many cases the presence of one or two marked symptoms, make surgical interference appear imperative. The danger of general inhalation anæsthesia in any operation, especially in persons suffering from tuberculosis, should not be forgotten. The employment of local anæsthesia might be more thoroughly tested

in cases in which the general anæsthesia is contraindicated. The temporal bone contains numerous groups of cells which may come into consideration in an affection of the same, and therefore the term "temporitis" may be a better name than "mastoiditis," which is sometimes misleading. The construction of the temporal bone is such that a process can go on in the depth without betraying itself by very plain symptoms; marked symptoms may appear suddenly, and in some instances they pronounce the death sentence of the patient. Emil Amberg (Medical Record, April 17, 1909).

PULMONARY TUBERCULOSIS, GRADUATED REST IN.

It is possible to give the lungs approximate, not complete rest. This latter measure should be prescribed sufficiently early and for sufficiently long periods. All patients who exhibit even the smallest sign of invasion by tuberculosis must be treated with the utmost rigidity. Rectal temperatures should be taken while the patient is in bed and so long as there is any fever, bed rest must be maintained. Such cases should not be put out on verandas in long chairs. Absolute silence must be maintained when during rest in bed, the temperature rises over 100.4 degrees at any time of the day. If this limit is not exceeded, the patient may visit the lavatory and perform the usual duties of the toilet. The morning temperature should be taken before breakfast, and it should fall at least as low as 97.8 before the patient is allowed to get up. Cases commencing with an initial hæmoptysis are, as a class, the cases which exhibit the least fever, and consequently require the least rest, but all require some rest in bed at the commencement of the bleeding. Later such patients may be allowed to exercise cautiously. Early resting prevents acute and incipient cases from becoming chronics. Patients who manifest at the outset the most violent constitutional symptoms, if they eventually survive, ultimately make the most perfect recoveries. All these suggestions apply to laryngeal lesions with double force. The cough should be controlled with opium derivatives, and absolute silence must be maintained for a period of even months. So soon as the temperature falls, laryngeal patients may be allowed to exercise. E. E. Prest (Lancet, April 3, 1909).

RETINAL HÆMORRHAGES.

The frequent association of retinal hæmorrhages with disorders of the circulatory system emphasizes the close relationship between ophthalmology and internal medicine. The significance of a retinal hæmorrhage extends beyond the disturbance of vision produced to some profound disturbance of the bodily function. The earliest definite signs which allow one to diagnose sclerosis are three: First, the corkscrew appearance of the small twigs at the macula and periphery; second, flattening of the veins by the arteries, and, third, the dull red congestion of the nerve head. This last sign is thought by Reber to indicate a more advanced stage of the process. Retinal hæmorrhage may be grouped into four types: First, simple hæmorrhage into the fiber layer of the retina; second, hæmorrhagic retinitis; that is, hæmorrhage with some œdema and exudates in the retina; third, subhyaloid, a hæmorrhage between the retina and the hyaloid membrane covering the vitreous; and, fourth, vitreous hæm-

orrhage, an extravasation sufficient to burst into the vitreous humor.

If a patient in middle life comes complaining of a blur of sudden onset, he should not be told that it is a trifling affair which will pass off, but a careful fundus examination should be made, best with a dilated pupil. If a little extravasation of blood or any evidence of vascular changes be found, which often can be detected in no other way in the early stage, the case should be thoroughly studied by the internist. The examination of the urine, blood, and especially blood-pressure, which is so easily determined, may point to the necessity for medication and changes in the life habits which may spare the patient serious accidents and give him many years of life. E. M. Blake (Yale Medical Journal, April, 1909).

RHEUMATISM, ACUTE: TREATMENT.

The writer reports favorable results in 12 cases of acute rheumatism under the following routine treatment: The use of calomel is followed by Dorsey's magnesia mixture until the bowels are freely open, then they are kept so. The patients should drink plenty of water. Thirty grains of sodium salicylate should be given each three hours until pain is relieved or there are unpleasant head symptoms. The dose is then decreased to twenty grains, and when the joints can be used freely without pain or stiffness the dose is again decreased to fifteen grains four times a day for one week. When the patient considers himself well, ten grains are given three times a day for two weeks. Oil of wintergreen was applied to the joints twice a day, and they were dressed in cotton and oiled silk or rubber sheeting. There has been some slight deviation from this rule to meet special indications in individual cases. S. E. Earp (New York Medical Journal, May 1, 1909).

SMALL-POX, DIAGNOSIS OF.

The diagnosis of this disease must often rest wholly on the objective lesions of the skin. Except in rare instances, and only in the presence of an epidemic, is the positive diagnosis of small-pox justified before the appearance of the skin lesions. The history of pre-eruptive illness serves only to confirm the diagnosis as made by the senses of sight and touch. The small-pox papule has characteristics which make a positive diagnosis possible within a few hours of its appearance. The papules appear first on the exposed parts, particularly the forehead and flexor surfaces of the wrists. They are under the epidermis, hard, round, flat-topped, umbilicated, rose-pink, and waxy in appearance. All these characteristics are usually present. In general, the entire course of evolution of the lesion from papule, vesicle, pustule, to scab formation is regular and characteristic. The lesions vary in number. They may be few, or so numerous as to become confluent, but the individual characters of the lesion are present in all cases. J. M. Armstrong (Archives of Diagnosis, April, 1909).

SYPHILIS, INTRAMUSCULAR INJECTIONS IN THE TREATMENT OF.

After having given or been officially responsible for something over 5,000 injections in three and a half years, the writer is convinced of the following facts and advantages in this method of treating syphilis:

The injection method of treating syph-

ilis is the most efficient of all methods. It keeps the patient best under control of the physician because he must return once or twice a week for his injections and for other treatment as needed by perhaps new symptoms. Although the medicine used is an antiseptic, the injection is a surgical procedure and as such requires the usual precautions of sterilization of the skin and of all instruments used. Rigid asepsis must never be neglected. If the injections are slowly and gently given with a long needle and if the patient is in the proper position of relaxed glutei, they are, in most cases, virtually painless. If painful, the patient may be told that they are exactly like a bruise and of no more importance. In the bruise the extravasated blood is the foreign body while in the injection the medicine is the foreign body causing the slight pain, by separation of the muscle fibres.

Node-formation of longer duration than two or three days is very rare if the injection is gently and deeply made into the muscle. Abscess-formation may be totally avoided if sterilized fluid, needle and skin are obtained. Embolism is a real danger but is, in fact, very uncommon. In the writer's experience a little less than once in 1,000 injections. Toxic accumulation is hardly excusable if palpation of the point of the preceding injection is made at each visit, before giving the next injection.

The salicylate of mercury appears to be so ultimately satisfactory that no other salt need be considered. The terms soluble and insoluble salts, meaning, as they do, the *laboratory solubility,* are unfortunate. The soluble salts, of which bichlorid is the type, give a very prompt and extreme reaction during the first 24 hours. The so-called insoluble salts, with the salicylate as the type, give a slower, surer and more prolonged action, apparently lasting five days.

Continuation of the injection is, as far as the writer's experience is concerned, necessary for the usual two or three years with one to two months' rest in each year. Of course, the patient's strength must be maintained at the highest possible level and in short, the disease must be managed like other parasitic diseases of which tuberculosis is a type. Fresh air, good food, judicious exercise and hygienic habits are indicated.

If the foregoing simple principles of employing this method of treatment are studied and followed the writer is convinced that a larger number of physicians will adopt it as, in every way, the best means of treating this disease. V. C. Pedersen (New York State Journal of Medicine, March, 1909).

THYROID, TRANSPLANTATION OF.

The writer has been experimenting on rabbits, the results encouraging further attempts to supply the missing function by implantation of thyroid tissue. The best results will certainly be obtained with repeated implantation of small scraps, and for this it is better to implant the scraps in the subcutaneous tissue (Cristiani) or in the peritoneal tissue (von Eiselsberg). H. Salzer (Wiener klinische Wochenschrift, March 18, 1909; Journal American Medical Association, April 24, 1909).

TONGUE, CANCER OF THE.

Beyond the fact that continued irritation of the mucous membrane and consequent ulceration may predispose to cancer of the tongue, there are probably no recognizable pre-cancerous stages. It is either cancer or not cancer, but even with the aid of the micro-

scope its true nature may not be evident. Predisposing conditions, also irritative, are described as leucoplakia, ichthyosis, chronic superficial glossitis, etc. All warty growths and thickenings of the surface, or ulcerations, are distinctly suspicious, and while they may be syphilitic and disappear with proper treatment, excision of a small part for diagnosis is advisable, and should be insisted on in every case. The author describes the methods of operation, and says that prognosis depends very much on the condition of the patient, and the spread of the disease at the time of the operation. The operative death rate in extensive operation has, hitherto, been excessive, as many of the patients have succumbed to such preventable causes as septic pneumonia, local sepsis shock, and hæmorrhage. The deaths due to those is almost 85 per cent., while septic infection causes more than 50 per cent. of the immediate fatalities. If one considers that much more extensive operations for removal of tuberculous glands can be done with an almost negligible mortality, and that septic pneumonia is rare after nose and throat operations and dental extractions under complete anæsthesia, one is forced to admit that a considerable factor must be the weakened conditions and age of most of the patients that submit themselves to the surgeon, and for this the family physician is much to blame. With proper preparation of the mouth, and good technique during the operation, the death rate should be reduced to below 20 per cent. for all operations offering a fair chance of complete eradication of the disease and a much smaller percentage for picked cases. Alexander Don (Practitioner, April, 1909).

Book Reviews

GLIMPSES OF MEDICAL EUROPE. By Ralph Thompson, M.D., Professor of Pathology, St. Louis University School of Medicine. Illustrated from Photographs and Drawings by Tom Jones. Philadelphia and London: J. B. Lippincott Company, 1908.

This little book gives the reader an interesting insight into the medical life of Europe, and, in a way, brings him in close contact with those who are recognized throughout the world as masters in their respective branches. It is of these men and their clinics, and the influence they have with and the impression they make upon the students, that the author particularly writes. The book is written in a style which is quite interesting and entertaining, as the expected dryness of such a subject is relieved by a strain of humor which appears at unexpected points. The photographs and drawings are attractive and appear to fit in well with the various descriptions. While the author made no attempt to provide a guide book for those expecting to study in Europe, nor even expected that his small work would assume such a rôle, there are many suggestions of undoubted value for those going abroad for scientific study and for a more liberal education in the various branches of medicine.—R. B. S.

PULMONARY TUBERCULOSIS AND ALL ITS COMPLICATIONS. By Sherman G. Bonney, M.D., Professor of Medicine, Denver and Gross College of Medicine, Denver. Octavo of 778 Pages, with 189 Original Illustrations, including Twenty in Colors and Sixty X-ray Photographs. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $7.00 net; Half-morocco, $8.50 net.

The author of this volume is to be congratulated for a feature which stands out prominently throughout its pages, viz., the fact that it embodies to a great extent the results of personal experience. American text-books and even monographs are so often mere compila-

tions, not of the literature of the subject, but of other books of a similar class, that exceptions merit special recognition. The size of the book, 778 pages of over 500 words each, indicates that the material furnished the reader is not scant; this fact is further emphasized by the multiplicity of topics covered, which include chapters on tuberculosis of organs other than the lungs—the kidney, bladder, testes, the female pelvic organs, the upper respiratory tract, the ear, etc., and also the relationship of other conditions, pregancy for example, or diseases such as syphilis, upon the morbid process. We find also that due attention has been given to the reciprocal relations of consumptives and society, subjects such as compulsory notification and registration, the supervision and education of the consumptive, the questions of dissemination, the influence of predisposition, of intermarriage of tuberculous individuals, etc.

Of special value to the general practitioner, to whom the work is especially dedicated, are the chapters on the therapeutics of the disease—the open-air method, the diet, the sanatorium, the climate, are all given due attention, as well as the resources available for the treatment of special symptoms, night sweats, hæmorrhages, etc. Drug therapy and the more advanced conceptions as to the use of tuberculin, with personal observations and comments thereon, are all considered in as thorough a manner as is compatible with the purpose of the book—that of affording practical aid to its readers. On the whole, we heartily recommend Dr. Bonney's beautifully illustrated and eminently satisfactory work.

A Text-Book of Operative Surgery. Covering the Surgical Anatomy and Operative Technic Involved in the Operations of General Surgery. Written for Students and Practitioners. By Warren Stone Bickham, Phar.M., M.D., Visiting Surgeon to Charity and Touro Hospitals, New Orleans. Octavo of 1206 Pages, with 854 Illustrations, entirely Original. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $6.50 net; Half-morocco, $8.00 net.

In the third edition of this well-known work over 200 new pages and 300 new figures have been added—an indication of the careful revision it has received. The broad subject of operative surgery is covered in a remarkably complete and painstaking manner. The author divides the operations into those of general surgery and of special surgery. The former includes the procedures used in connection with the arteries, such as ligation, arterial suture, and aneurismorrhaphy, together with the operations upon the veins, lymphatics, nerves, bones, joints, muscles, etc., and the amputations, disarticulations, and excisions of joints. Part II, on special surgery, includes extensive chapters on the head, spinal column and cord, neck, thorax, abdomino-pelvic region, male and female genital organs, with a closing section on the herniæ.

The work is devoted almost entirely to operative technique and the related anatomical considerations, the clinical aspect having been limited chiefly to brief statements of the indications for the various procedures described. The consideration of each structure begins with a section on surgical anatomy, setting forth concisely the relations to surrounding structures, boundaries of surgical spaces, etc. Detailed description of the operations follows. Under each heading a general statement as to the scope of the operation, then the position of the patient, landmarks, incision, followed by the details of the technique, the successive steps being numbered.

Clearness and ease of understanding are greatly enhanced by the numerous well-executed illustrations, some showing the incisions for the various operations with their relations to the bony supports, and others, dissections of the underlying structures. There are also cross-sections of the limbs at various levels, etc. The extent of the work may be judged from the fact that 200 pages are devoted to the amputations. Specially well-executed sections of the book are those on cranial and spinal surgery, the thorax and its viscera, and the gastro-intestinal tract. The section on herniæ is rather scant in comparison, and that on the female genital organs, belonging more properly to gynæcological works, describes but four operations. Otherwise the work can be said to be well-balanced, devoting due space to the operations most commonly performed. Freedom from typographical errors is a noticeable feature. In clearness of description the text could hardly be improved upon, while the mechanical execution is very satisfactory. The work will undoubtedly prove useful to careful operators as a complete, but not unwieldy exposition of the subject.

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Clinical Lecture

PSORIASIS.*

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PHILADELPHIA.

GENTLEMEN:—The next patient, a young girl, age eighteen years; nativity, America; occupation, housework; presents typical lesions over her entire body of a disease which you, I hope, will at once recognize. Her history reads as follows:—

Miss S. M. Her parents are living and well. She has four sisters and two brothers, all of whom are in good health. In fact, there is no history of anyone in her immediate family having ever had a similar affection, nor is there a history of cancer, or tuberculosis, in her family. Her father is subject to occasional attacks of rheumatism.

As a child she had measles, scarlet fever and diphtheria. She complains of pain in her knees and feet. At times the pain is so severe that she cannot walk or even stand on her feet. She states that there is never any evidence of inflammation, except a slight swelling. The eruption over her body first began on her scalp eight years ago as small red papules covered with whitish scales. Some of the papules were closely united together and coalesced, forming large infiltrated and desquamating areas. About two years after the first appearance of the papules on the scalp, similar papules appeared on the extensor surfaces of the forearms and on the back. So many papules appeared over her entire body that they coalesced and formed during the past two years these large infiltrated desquamating areas, covering almost her

* Delivered in the Clinical Amphitheatre Medico-Chirurgical Hospital.

entire body and limbs. She complains of no pain or itching in the parts involved.

The physical signs are negative, except the condition of her skin. Her tongue is coated heavily with a yellowish coat, the breath is offensive and she complains of chronic constipation, flatulence and eructation of gas after meals.

Diagnosis.—The lesions over this patient's body are so typical that the diagnosis can be positively made at a glance as psoriasis.

The diagnosis of less typical cases is made on the history of the onset, the small red papule covered with whitish scales and usually appearing on the extensor surfaces of the arms by preference. These papules are followed by similar papules closely situated, which coalesce and form thick, infiltrated desquamating areas of skin.

The involved skin on this patient is raised above the normal skin, is infiltrated so that it appears almost like leather and desquamates most profusely. The lesions are sharply defined, which is another characteristic symptom of the disease.

In patients with less typical symptoms of psoriasis than are present in this patient—the disease might be mistaken for eczema squamosum, squamous syphilis and seborrhœa sicca. The tables on the blackboard will clearly point out the differential points.

Psoriasis.	*Eczema Squamosum.*
1. The primary lesion begins as a papule covered with whitish scales.	1. The primary lesion begins as an erythematous patch, a vesicle, pustule or moist spot.
2. Itching slight, rarely intense.	2. Itching severe.
3. Affected areas sharply defined.	3. Affected areas gradually fade into healthy skin.
4. Areas occur, both large and small, and are usually round.	4. Areas are large and irregular.
5. Involves with preference the extensor surfaces.	5. Involves, with preference, the flexor surfaces.
6. The lesions often remain unchanged for months.	6. The lesions rapidly change.
7. Eruption is always dry.	7. Eruption usually is moist.
8. Areas are covered with many white scales.	8. Areas are covered with small yellowish scales or with crusts.
9. The course is chronic.	9. The course is either acute, subacute or chronic.

Psoriasis.	*Syphilis Squamosus.*
1. History negative.	1. History of primary lesion.
2. History of rheumatism, gout or gastro-intestinal catarrh.	2. History of sore throat, syphilitic fever, and other concomitant signs.
3. Extensor surfaces of arms and legs nearly always involved.	3. Extensor surfaces of arms and legs rarely involved.
4. Lesions regular in outline.	4. Polymorphous arrangement of lesions.
5. Scales are shining, silvery-white and abundant.	5. Scales dirty, yellow and few.
6. Itching slight.	6. Itching absent.

Psoriasis.	*Seborrhœa Sicca.*
1. Eruption in areas of entire scalp.	1. Eruption usually involves the scalp over the top of the head only.

2. Scales dry and silvery white.	2. Scales yellowish, fatty and greasy to the touch.
3. Scales consist of epithelial cells.	3. Scales consist of dried sebum.
4. Base of eruption is inflammatory and infiltrated.	4. Base of eruption is anemic.
5. Eruption also present over the body and extremities.	5. No eruption over the body.

Pathology.—A section of the involved skin under the microscope shows a hyperplasia of the mucous layer, and of the normal constituents of the rete Malpighii. The increase occurs chiefly in the intercapillary portion of the layer, which growing downward, gives the appearance of increased size which is not found to be increased upon close examination. In the advanced stage of the affection the superficial blood-vessels of the corium become dilated, migration of the white corpuscles follows, and the connective tissue and the blood-vessels of the corium become the seat of round-cell infiltration, which, together with effused serum, divides the connective tissues into open meshes. There is no involvement of the sebaceous and sudoriferous glands, but there is hyperplasia of the external root of the hair, extending into the cutis.

Etiology.—The underlying cause of the psoriasis in this young woman is rheumatism. In many patients, as is the case in this one, it appears that the rheumatic condition manifests itself in the form of psoriasis instead of severely affecting the joints or muscles of the body. Gout, rheumatism, gastro-intestinal catarrh and irritation of the skin are considered predisposing causes of the disease. I, however, am of the opinion that there must be a peculiar individual diathesis present before the disease will manifest itself. Psoriasis is as common among the wealthy as among the poor, and in all walks of life. Some claim it to be hereditary and to follow scrofula, syphilis and other constitutional diseases, which leave the blood in an impoverished condition. Again, others advance a microbic theory which, in my opinion, by experience, I cannot warrant the belief.

Treatment.—This disease is constitutional and must be treated accordingly. First, it behooves us to ascertain the cause and remove it if possible. Treat the cause, whether it be rheumatism, gout or gastro-intestinal catarrh.

In this patient I believe the chief cause of her trouble is due to her rheumatism and her rheumatic diathesis. Her gastro-intestinal canal is in a catarrhal state, as evidenced by the condition of her tongue, the chronic constipation and flatulence. Consequently, we will first treat her digestive organs to bring about better digestion and assimilation. Internally, we will prescribe for her a calomel purge, to be followed by a saline, after which we will request her to take a capsule containing:—

℞ Extracti hydrastis ..... gr. ¼.
Extracti nucis vomicæ ..... gr. ⅒.
Extracti rhamni purshianæ ..... gr. ss.
Olei menthæ piperitæ ..... *m* ⅒.
Extracti taraxaci ..... gr. j.
Misce. Fiat capsula No. j. Mitte No. xxx.
Signa: One such capsule after each meal and at bed-time.

After the gastro-intestinal catarrh has subsided we will place her on an antirheumatic combination containing:—

℞ Olei gaultheria ..... f3j.
Massæ ferri carbonatis ..... 3j.
Arseni trioxidi ..... gr. ¾.
Sulphuris præcipitati,
Phenylis salicylatis, of each ..... 3j.
Misce. Fiant capsulæ No. xxx.
Signa: One capsule after each meal and at bed-time.

Externally we can at once give her a stimulating ointment which will lessen the infiltration and desquamation. Salicylic acid, in combination with the nitrate of mercury in the form of an ointment, are probably the best agents at our disposal for this purpose. Therefore the ointment containing:—

℞ Olei gaultheria ..... f3j.
Acidi salicylici ..... 3iss.
Unguenti hydrargyri nitratis,
Unguenti aquæ rosæ, of each ..... 3j.
Misce. Fiat unguentum.
Signa: Apply to the parts affected twice daily.

Hygienic measure and diet are as essential in the successful treatment of this disease as is medicine. The functions of the skin must be kept active by bathing. The bran baths are especially valuable in psoriasis to soften the skin and loosen the scales. Three to four pounds of bran to a tub half full of water is a sufficient quantity.

The diet must be plain and consist chiefly of vegetables. Foods rich in nitrogen, especially those from the animal kingdom, should be used very sparingly. Coffee, tea, alcoholic beverages, and highly-spiced foods are also interdicted.

Prognosis.—Her age is in her favor, and by persistent treatment with a careful and well-selected diet she should receive a cure in a comparatively short time. The disease is curable, but it often requires months, and sometimes years, to bring about desired results.

Original Articles

CONCLUSION IN REGARD TO TUBERCULAR URETERITIS.

By BYRON ROBINSON, B.S., M.D., LL.D.,
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My subject is tuberculosis; my theme, tuberculosis of the ureter.

Etiology.—The general views of urologists in regard to reno-ureteral tuberculosis is: that it is a circulatory (hæmogenous or lymphogenous) disturbance and originates unilaterally. I believe from years of personal autopsic observation that reno-ureteral tubercular infection is mainly lymphogenous in origin. The cause of reno-ureteral tuberculosis is due to individual predisposition, however. Perhaps fifty per cent. of adults are afflicted with tuber-

culosis. In tuberculosis of the reno-ureteral tract the tubercle bacillus may arrive at the tract through the *lymph* stream travelling in a retrograde or abnormal direction, *e. g.*, from the lungs through the diaphragmatic lymph channels. The chief rule in tubercular ureteritis is a distalward moving infection from the tubercular kidney. Hæmogenous origin of reno-ureteral tuberculosis does not explain its unilateral beginning—lymphogenous origin is, perhaps, a more rational explanation. The kidney in children may be the seat of a miliary tuberculosis which is not a part of a general tuberculosis, hence, was probably carried to the kidney by the renal arteries or renal lymph channels. Septic infarcts in the kidney may be a mode of dispensing tubercular infection.

Pathology.—Ureteral tuberculosis begins in the vast majority of subjects in the calyces or pelvis—which derives it from the renal parenchyma. Tubercular ureteritis begins mainly in the mucosa. The rigid, hypertrophied, non-flexible ureter is due to periureteritis and mixed infection. Acute miliary renal tuberculosis chiefly prevailing in children is rapidly fatal, hence is seldom subject to operation. Ulceration of the apex of the pyramid may cause dangerous hæmaturia. Advanced reno-ureteral tuberculosis is in the majority of subjects accompanied by mixed infection. The pathology of the urinary tract in the dead (through autopsy) and the pathology of the tuberculosis of the urinary tract in the living (through cystoscopy) have joined hands telling the main story that tuberculosis in the urinary tract is a distalward moving process, and that it chiefly arises in the renal parenchyma. A decade and a half ago the general opinion was that tuberculosis was a proximalward moving disease in the urinary tract. To-day the opinion is that tuberculosis is a distalward moving disease in the urinary tract (mainly demonstrated by the cystoscope). A rational principle is that tuberculosis of the urinary tract moves not proximalward against the urinal stream—but accompanies it distalward. The tubercle bacillus arrives at the ureter, infecting it, from the blood stream, from the renal parenchyma, from the bladder, from adjacent organs. The chief source of tubercular ureteritis is from the renal parenchyma through the *cribrum benedictum* or apertures of the renal pyramidal apices. In autopsy it is not rare through longitudinal incision of the external border of the kidney to observe the yellowish tubercles in the renal parenchyma. The bladder may be infected by tuberculosis from the *vesiculæ seminales* or epididymis producing ulceration adjacent to the ureteral orifice ending in stricture of the vesical orifice and uro-ureter. In the urinary tract the kidney is the *locus minoris resistentiæ* for tuberculosis—which may be engrafted on a debilitated kidney. Perhaps five per cent. of subjects afflicted with phthisis pulmonalis suffer from tuberculosis of the urinary tract. The reno-ureteral tuberculosis is a secondary process. The frequent micturition is due to vesical disease, ulceration of the bladder mucosa, inflammatory hypertrophy of the bladder walls, noncapacity of the bladder to dilate and contract except with pain. Tubercular renal inflammation is the most perfect type of infectious nephritis. Primary tuberculosis of the bladder is rare—hence if vesical tuberculosis exists its source must be sought from the kidney, uretera, seminal

vesicles, prostate, epididymis—possibly from circulatory disturbances in the lymph or blood stream. Pathologic physiology of the ureter—*i.e.*, the defect in sensation, peristalsis, absorption and secretion of the ureter—results in defective transportation of urine, obstructing the normal functions of the kidney (which are sensation, peristalsis, absorption, secretion). The chief essential function of the ureter is peristalsis.

Symptoms.—The dominating symptoms in tuberculosis of the ureter are: hæmorrhage, pain and frequent micturition. Casper advocates that persistent acid pyuria is a diagnostic feature of tuberculous nephritis. Whenever pus is discovered in the urine the uterer furnishing pus may be demonstrated, occasionally, by unilateral ureteral massage, repetition of alternating unilateral ureteral massage may confirm or dispose the correctness of the pyo-ureter or pyo-uro-ureter. The right ureter is attacked more frequently than the left in reno-ureteral tuberculosis. As a rule reno-ureteral tuberculosis manifests tenderness by ureteral pressure—at the three ureteral isthmuses, proximal (at distal renal pole); middle (at *vasa iliaca communis*); distal (at urinary vesical wall). Unilateral pain in micturation may be a suspect of urinary tuberculosis. An inflamed ureter with hypertrophic parietes, with diminished lumen and length may functionate with pain. In reno-ureter tuberculosis the affected kidney may be at first smaller or second larger than the healthy kidney. The pain in tubercular ureteritis is recurrent (violent ureteral peristalsis, accompanied, perhaps, by ureteritis). The pain may be due to occlusion of the ureter by blood-clots or from the peristalsis of an inflamed ureter. The reaction of the urine is in the incipient stage of tuberculosis of the urinary tract acid, in the advanced stages it is alkaline. Hæmaturia exists in reno-ureteral tuberculosis from ulceration of the mucosa, especially the pyramidal apex. Pyuria exists in tuberculosis of the ureter, from the suppuration of the mucosa, due to the destructive ulcer. Persistent, frequent micturition or vesical tenesmus painful or others (notwithstanding previous gonorrhœal attacks and catheter infection), should be considered as a suspect for ureteral tuberculosis. Subjective pain in reno-ureteral tuberculosis may refer to the healthy or diseased organ—it may be reflex and is uncertain as to locating the disease. Acute inflammatory processes of the proximal ureter (especially the calyces and pelvis) produces congestion and œdema of the distal ureteral orifice with eversion of the ureteral orifice. The degree of ureteral eversion and œdema of the ureteral orifice is in accord with the degree of tubercular ureteritis. Profound disturbances of the proximal ureteral dilatation as circulatory, inflammatory or ulcerative, modifies the distal ureteral orifice in the form of congestion, œdema, eversion, dilatation, ulceration. In other words the circulation of the ureter is so compactly and solidly anastomosed from calyces to trigone that what effects the circulation of one extremity of the ureter will correspondingly effect the other. In both infectious uretero-nephritis and (reno) ureteral tuberculosis there exists pain, rise of temperature, night sweats (from sepsis). Both diseases may present: tender kidney, renal hypertrophy, diminishing weight, unfavorable appetite, pus, blood, casts and epithelia in urine, emaciation, debility. Reno-ureteral

tuberculosis varies in its effect, rapidity or slowness of course, similar to other germ disease. Some are markedly chronic and some are markedly acute—duration averages, perhaps, three years.

Diagnosis.—The presence of the tubercle bacillus in the urine is one of the most definite signs of urinary tuberculosis. The presence of the tubercle bacillus in the urine is not conclusive evidence of reno-ureteral tuberculosis as: (a), tubercular ulcer may have perforated the bladder; (b), the bacillus may be projected through the ejaculatory duct from the *vesiculæ seminales;* (c), it may arise in glands of the prostate; (d), the bacillus may be filtered from the blood or lymph through the kidney (from extrarenal tuberculosis). If the vesical ureteral orifice on one side be normal and on the other side abnormal experience dictates that the reno-ureteral disease is on the side with abnormal ureteral orifice. However, crossed ureters should not be forgotten. Yet most crossed ureters correspond to a right and left kidney (especially in sigmoid kidney). A constricted ureteral orifice evacuating in a congested œdematous area indicates an acute ureteritis with bladder complications—and persisting is a suspect of tubercular ureteritis. Limited inflammation and hypertrophy of the ureteral orifice with limited congestion of the adjacent mucosa may indicate incipient ureteral tuberculosis, pyoureteritis or nephritis. A lateralward and proximalward retracted ureteral orifice may indicate a diminishing length of the ureter from cicatricial ureteritis or proximalward retraction of the kidney from paranephritis; however, I have observed these identical processes may result from both infectious and tubercular processes. A marked œdema of the ureteral orifice and immediately adjacent mucosa may indicate ureteral tuberculosis or a calculus lodged in the pelvic segment of the ureter. If, however, nodules accompany the œdematous ureteral orifice tuberculosis is at least a suspect. In ureteral tuberculosis grave changes are practically constant in the vesical ureteral orifice—not so always in renal tuberculosis. The presence of granulations or papillæ adjacent to the vesical ureteral orifice are suspects of reno-ureteral tuberculosis. If the bladder presents no tubercular symptoms bilateral ureteral catheterization will be required for further diagnosis. Clarified urine excludes not tuberculous because the tubercular ureter may be obstructed or obliterated. A danger in ureteral catheterization in a subject possessing vesical tuberculosis is that the catheter may transport the bacillus to the ureter, with possible subsequent ureteral tuberculosis. In cystocopy for tuberculosis in the bladder, ureter or kidney it may be well to remember that the tubercular bacillus may be injected into the ureter from the *vesiculæ seminales* or prostate gland. Cystoscopy and ureteral catheterization are the main aids to diagnose reno-ureteral tuberculosis. Cystoscopy demonstrates the condition of the vesical ureteral orifice and its relations to its environments. Ureteral catheterization demonstrates the functional capacity of both kidneys. When the vesical ureteral orifice is dislocated, retracted, drawn lateralward and proximalward the length of the ureter is not only diminished, but its lumen is compromised, hence, the urine is forced through the ureter with difficulty and frequently with pain. Obstruction in the reno-ureteral function proceeds swiftly onward and swiftly downward to final destruction. A retracted vesical

ureteral orifice indicates hypertrophy and ureteral contraction of the ureter with diminished ureteral lumen. The temperature in urinary tuberculosis assumes a remarkable variation—depending on the conditions of mixed infection. Some of the marked changes in the vesical ureteral orifice observed by the cystoscope during reno-ureteral tuberculosis may be noted as the following: If the ureteral orifice be patent, accompanied by adjacent mucous inflammation, tubercle nodes and tubercle bacillus exists—it is a suspect of tuberculosis. Congestion and œdema of the vesical mucosa adjacent to the ureteral orifice, eversion of the ureteral orifice indicate acute ureteritis—a suspect of tubercular ureteritis. Elongated, everted, œdematous ureteral orifice with redness indicates violent disturbances (circulatory, inflammatory, ulcerative) at the proximal ureteral dilatation (calyces and pelvis), *e.g.,* as in tuberculosis. A dilated ureteral orifice without hypertrophy, œdema or redness indicates a mild disturbance (circulatory, inflammatory, ulcerative) as in lithiasis. The diagnosis of reno-ureteral tuberculosis mainly rests on: 1, Clinical history; 2, physical examination; 3, urinalysis; 4, cystoscopy and separate ureteral catheterization; 5, tuberculin test.

Function.—In tubercular ureteritis individual catheterization of the ureters is required to determine the functional capacity of each kidney. The functional diagnosis of the reno-ureteral tract must be determined. From microscopic examination, from cystoscopy, from ureteral catheterization, from the percentage of urea, from the phloridzin test, the functional capacity of each kidney may be determined. In the beginning of tubercular ureteritis polyuria may exist, but in advanced stages decrease in urine occurs.

Location.—The rule regarding the location of urinary tuberculosis is: (a), renal; (b), ureteral; (c), vesicular.

Obscure Diagnosis.—Tuberculosis of the ureter may be mistaken for lithiasis, ureteritis. There is more hæmaturia and frequent micturition in ureteral tuberculosis than in ureteral lithiasis. Frequent micturition in tubercular ureteritis may be observed day and night. In tubercular ureteritis there is the clinical history, family history. Reno-ureteral tuberculosis is fairly rapid, cachexia is prompt. Ureteral lithiasis presents a history of rheumatism, gout, lithæmia, pain in dorsal region. In ureteritis tuberculosa, tuberculosis may be noted elsewhere. Reno-ureteral tuberculosis may be mistaken for neoplasm and *vice versâ.* Cachexia distinguishes ureteral tuberculosis from ureteral lithiasis. Ureteral tuberculosis generally occurs in young adults (under forty). Renal neoplasms usually occur in subjects over forty. Renal neoplasm is generally palpated with facility on account of considerable dimension. Reno-ureteral tuberculosis usually presents limited dimension for palpation. Proximalward moving uretero-nephritis is the most easily confounded with reno-ureteral tuberculosis. Differentiation of these two diseases is difficult, requiring skill, time and repeated observation. The souvenir aids to differentiate between infectious uretero-nephritis and reno-ureteral tuberculosis are the cystoscope and the microscope. The cystoscope reveals the condition of the vesical trigone, the bladder, and mucosa, with especially the appearance of the ureteral orifices. The microscope may reveal the tubercular

bacillus—the main diagnostic sign. A cystic kidney may be mistaken for a tubercular kidney; however, the cystic kidney is generally larger, more indefinite in contour, more mobile, producing slight constitutional symptoms.

Surgery.—The anæsthesia, in kind, must be chosen by special anæsthetists. In cases of reno-ureteral tuberculosis with perireno-ureteral abscess, lumbar incision (nephrotomy), and drainage frequently aids as a preparatory method. In reno-ureteral tuberculosis, with severe involvement of the urinary vesical, infrapubic cystotomy may relieve pain and comfort the patient. Neither tubercular disease in the other sufficiently functionating kidney nor tubercular depredations in extrarenal regions is a contra-indication for nephrectomy. If the functional capacity of one kidney be sufficient to support life, the other may be removed regardless of its disease, and should be executed in reno-ureteral tuberculosis. If reno-ureteral tuberculosis be bilateral, however, the functional capacity of one kidney be sufficient to sustain life, the other tubercular kidney should be extirpated, because subsequent to the renal extirpation the renal hypertrophy of the remaining organ, from necessity, will be supplied by an extraordinary volume of blood, which may cure the tuberculosis, for living, flowing blood cures disease. The souvenir remedy (at present) for reno-ureteral tuberculosis is nephrectomy and ureterectomy. Nephrotomy has not proved satisfactory in reno-ureteral tuberculosis. Nephrotomy may serve the purpose of a preparatory aid to nephrectomy by draining extensive renal abscesses and infected areas. Bilateral reno-ureteral tuberculosis is not a contra-indication to nephrectomy, if one kidney be able to assume the necessary function of both. Subsequent to nephrectomy for tuberculosis the patient should lie on the dorsum to allow maximum drainage of the wound. The patient should have continuous proctoclysis, eight ounces of fluid per hour entering the rectum and sigmoid. Also as much hot fluid per mouth should be administered as the stomach will bear—two to four ounces. The mortality of reno-ureteral extirpation for tuberculosis is marked—10 to 40 per cent. The pre-operative treatment for tubercular reno-ureteral surgery is *visceral* drainage, *i.e.,* the patient should drink eight ounces of fluid every two hours for eight times (four pints) daily for three to four days preceding the operation. Medicated lavage of the ureter in reno-ureteral tuberculosis is a rational procedure, allowing direct medication.

Prognosis.—Spontaneous healing of reno-ureteral tuberculosis is apparently extremely rare—in fact, so rare that it should not be expected. Therapeutic healing or reno-urteral tuberculosis, at present reports, is extremely rare. Though the spontaneous and therapeutic healing of reno-ureteral tuberculosis is extremely rare, yet therapeutic measures, as climactic, dietetic, hygienic should be employed to improve the general condition of the patient —to lessen suffering and prolong life, to improve digestion, to aid sleep, to increase red blood; in short, to improve function. It is probable that spontaneous healing of the tubercular bladder in reno-ureteral tuberculosis is due to obliteration of the tubercular ureter or the removal of the tubercular kidney. It would appear that the renal parenchyma is such a favorable nidus

for the thriving of the tubercle bacillus that it becomes progressive. The duration of reno-ureteral tuberculosis after marked symptoms averages some three years—the patient usually dying of uræmia and cachexia. Opinions are divided as to whether pregnancy damages subsequent to nephrectomy.

PRINCIPLES OF THE MODERN TREATMENT OF GONORRHOEA.*

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In this advanced era of pathology and bacteriology, it may seem rather puerile and elementary for one to address a medical assembly on the treatment of gonorrhœa. It is the firm conviction of the writer, that too much cannot be written or spoken about the treatment of this universally prevalent disease, and that it is a sad commentary on our American literature to peruse most of our text-books on genito-urinary diseases and read some of the antiquated methods of treatment of urethral gonorrhœa. Ofttimes more stress is laid on some particular favorite drug of the author, than on a thorough consideration of the correct principles of treatment, in which all drugs are of minor importance.

Almost every drug in the pharmacopœia or dispensatory has, at some time or other, been used or recommended as valuable in the treatment of this disease. Notwithstanding the arrogant claims of many pharmaceutical chemists: There is no specific drug or treatment for the cure of gonorrhœa. There is no drug or chemical that can be applied to every urethra with equally good results.

It is our purpose in this paper to deal with the principals of treatment, and not dwell on any specific remedial agent or method of treatment.

It is of minor importance what drug or chemical is used or what method of application is resorted to, provided the cardinal principle is adhered to, embodied as follows:—

The successful treatment of gonorrhœa consists in the proper understanding and use of the surgical principles of rest and free drainage, and the methodic use of certain classes of drugs and bactericidal agents primarily, and secondarily endeavoring to repair as well as possible any damage to the urethral mucosa and adnexa, resulting from the proliferation and growth of the gonococcus.

Remember that each urethra has a distinct individuality; some are leathery, others are intolerant and irritable. According to Robinson, "The gonococcus is the king of beasts among germs, as it practically prepares the road for all the pathogenic germs by trauma of the mucosa, producing atria for infection."

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*Read in the Symposium on Gonorrhœa, at meeting of the St. Louis Medical Society, May 1, 1909.

Analyzing this cardinal principle, we must then consider as the elements of treatment the following: Prophylaxis, free drainage, rest, bactericidal agents, repair and regeneration of destroyed and damaged mucosa, abnormalities of urine, as hyperacidity, oxaluria, phosphaturia, etc.

DRAINAGE.

Evacuate all pus from the urethra by free drainage, not by the introduction of any foreign material into the urethra, as gauze, etc., but between the intervals of micturition the penis should be suspended in a comfortable position in a dressing retainer and fresh cotton applied to the glans after each urinary act. A congenitally narrow meatus is an obstacle to free drainage. By no means should the filthy tobacco pouch be used where the meatus and glans is kept constantly bathed in the pus exuding from the urethra into the cotton at the bottom of the pouch. No bandage should be applied directly to the penis that is constricting in any sense. The pus of gonorrhœa is as essential to and symptomatic of this diseased condition as pyrexia is in typhoid or pneumonia. When the typhoidal temperature is temporarily reduced with cold and hydrotherapy, it does not signify that the disease is cured, but we also endeavor to eliminate the typhoid bacillus in the gall, urinary bladders and bowels to the best of our ability. Strange to say, we often lose sight of the fact that the suppuration and secretion of the urethra in gonorrhœa is quite essential; it is nature's method of eliminating the inflammatory detritus, together with the destroyed gonococci and epithelium, the result of phagocytosis.

Therefore we must not be too desirous of promoting the patient's happiness and peace of mind, by attempting too quickly to stop the urethral discharge. You may dress a varicose ulcer with a bismuth powder and have a scab form over it very quickly, but this would not necessarily indicate that the ulcer is healing. Remove the scab and often a collection of pent up pus will be found beneath it. Just so in acute primary gonorrhœa; attempt to stop a suppurating urethra quickly, which can often be done by astringent mixtures, and you only delay healing, while the gonococci penetrate the submucosa and muscularis layers of the urethra. There has existed a so-called abortive treatment for many years, with the chief idea of destroying the gonococci quickly by an initial application of some strong silver solution, etc. Many authorities agree that the abortive treatment is useless forty-eight hours after the beginning of symptoms. Patients must be seen a few hours after the itching and burning of the urethra starts, and a slightly purulent discharge exists. We often hypnotize ourselves with the phantom of abortive treatment that seldom is a reality. It is never successful when the inflammatory process has penetrated below the surface layer of the epithelium.

REST.

This is of paramount importance; physical rest of the whole body in a reclining posture as much as possible, during the acute stage, thus relieving

all tendency to pelvic congestion. Rest the posterior urethra by keeping the rectum unloaded of all fæcal contents, by at least one daily bowel action, which relieves all tendency to all pressure on the prostate, because there is a direct anastomosis of the hæmorrhoidal and prostatic circulations. Rest the penis and scrotal contents by wearing a bandage for both; the Modified Support Bandage and Dressing Retainer, such as the writer's, manufactured by Seabury & Johnson, of New York, which also has the advantage of keeping all dressings to the penis in position, and preventing soiling of the linen by infectious discharges.

BACTERICIDAL AGENTS.

Many of the elements, in various organic and inorganic combinations, have been used from time to time, as mercury, thalium, silver, manganese, potassium, copper, sodium, iodine, bismuth, zinc, lead, etc. The most commonly used to-day, as bactericidal agents, are the organic and non-organic silver salts. In the Transactions of the American Urological Association, Volume II, 1908, are recorded my views on the new silver preparations, in which is stated that these newer preparations are not in all cases equally as efficient, nor can they fully replace the older silver nitrate.

Astringents must never be used in early treatment, until all evidence of gonococci is negative. Many prefer not to use them at all because of the possibility of sealing up or enveloping in the tissues some latent germs. No one can intelligently treat a gonococcal infection of the urethra without frequent use of the microscope to examine urethral secretion, urinary shreds and filaments. This is of absolute necessity, and is a compass that guides and directs our course of treatment.

In applying local medication to the urethra, which is at times highly inflamed and œdematous, discretion must be used so as not to use bactericidal solutions, which smart and irritate the urethral mucosa. It is often advisable to wait for several days before beginning local medication, especially if there should be slight capillary hæmorrhage from the mucosa at each urinary act. If, for some reason local medication is attempted at this time, it is advisable to precede such antiseptic solution with an anæsthetic as alypin, novocain, cocain and adrenalin. It matters not in what manner antiseptic solutions are applied to the urethra; whether in lavage with a large volume of fluid for copious irrigation, or the use of a large piston syringe, provided we remember that where the infection is limited to the anterior urethra, as it is during the very early part of an acute inflammation, force and pressure with a syringe or irrigation apparatus may quickly disseminate the infection to healthy portions of the urethra, even to the bladder by direct continuity of tissue. We must remember that we have virtually two urethras: the anterior and posterior, and that it is more simple to treat the former than the latter.

Abnormalities of urine must be considered because an oxaluria, phosphaturia and excess of uric acid crystals or hyperacidity will irritate the inflamed mucosa. These urinary conditions indicate the necessity for proper dietetic

and internal medicinal treatment; and the use of demulcents, antacids, sedatives and diuretics. We cannot too vigorously condemn the use of any medium except warm sterile water or glycerine as a vehicle for the gonococcocides, in their application to the acutely inflamed urethra. Therefore avoid inserting gauze, saturated with antiseptics, medicated bougies or suppositories and ointments during the acute stage.

Never introduce any instrument or foreign body into an acutely inflamed and suppurating urethra, unless there is some special emergency necessitating it. A case of genuine gonococcal urethritis, in contradistinction to the several forms of simple urethritis, is never absolutely cured in three days. Classical cases require, as a rule, at least six or eight weeks of careful methodic treatment. The practice of treating an infected urethra solely by the use of internal medication with urinary antiseptics, balsamics, etc., has been relegated to oblivion long ago. Gonococci can only be destroyed by attacking them *in situ*, in the urethra or adnexa by direct bactericidal medication.

REPAIR OF DESTROYED AND DAMAGED MUCOSA AND ADNEXA.

The adnexa most commonly complicated in urethral gonorrhœa are the prostate, seminal vesicles and epididymi. When this occurs it indicates that the disease has infected the posterior urethra, because the ejaculatory ducts of the vesicles and the prostatic ducts are directly continuous with the prostatic urethral mucosa, also the lymphatics are in direct continuity. The prostate is of paramount importance, and when acutely infected with gonorrhœa, bids fair to run a long chronic course, covering weeks, months, years, and, possibly, incurable. The so-called gleet and morning drop of chronic gonorrhœa is commonly dependent on an infected prostate, that may have escaped detection and received no treatment; a similar state of affairs may exist with diseased seminal vesicles, where only too commonly, when acutely infected, they escape detection and treatment. Recurrent epididymitis, neuralgic pains of the spermatic cord and testes, are commonly caused by a chronic gonorrhœal prostatitis or vesiculitis. Gonococci may lie dormant for years in the prostate and urethral follicles, and in coitus when there is congestion and hypersecretion of the urethra, prostate and vesicles, all mixed together with the seminal elements, we can readily understand how gonococcal semen is deposited in the vagina, then follows the tragic recital of pus tubes, laparotomy, etc.

Formerly most text-books advised eliminating all urethral treatment when acute epididymitis occurs. I believe this is an antiquated superstitious tradition, not founded on logical facts, and therefore advise continuing treatment of the posterior urethra, with proper precautions. Schindler[1] advocates puncture as a therapeutic method in treatment of gonorrhœal epididymitis. Epididymotomy, or puncture and incision of the epididymis in gonorrhœal inflammation, is now universally practiced. There is no good

[1] Deutsch. Med. Woch., 1907.

reason why it should not be done wherever feasible, although many patients object to the knife for such a simple thing as "swollen testicles," as they call it. Bazet has a record of sixty-five cases with good results, and advises operative procedure as soon as the diagnosis is made. Hagner says: "The operative treatment of gonorrhœal arthritis was the procedure that suggested to me the surgical intervention in these cases of gonorrhœal epididymitis." We all know the intense pain in acute epididymitis when all patients only too eagerly go to bed. The advantage of epididymotomy is vanishing of pain almost immediately after operation, reduction of temperature, elimination of the constant danger of recurrent attacks of acute reinfection due to retained infection in loco for years.

Belfield[2] refers to gonorrhœal epididymi as pus tubes in the male; he regards this condition as far-reaching as pyosalpinx, and advises surgical treatment, free drainage and evacuation of all pus. Bilateral or unilateral occlusion of the vas deferens is very common following an epididymitis with a consequent sterility. Gynecologists must not lose sight of the bearing of this condition on the question of propagation of species, when consulted by women, who never suspect the husband as the cause of their sterility, when examination of him may show indurated areas in one or both functionless epididymi. Bier's method of artificial hyperæmia in acute epididymitis according to reports is not markedly successful.

In referring to regeneration of destroyed and damaged mucosa, we consider the conditions resulting from the destructive action of the gonococci at which time they may have apparently disappeared and the purulent secretion of the urethra diminished or ceased, and instead a urethral catarrh exists. This is the chronic stage of urethritis, and should be treated by primarily inspecting the anterior and posterior urethras with the urethroscope, by ocular inspection. This is done to determine the exact seat and location of the lesion. In this stage instrumental treatment in some form or other is not only indicated, but of absolute necessity for a cure. Permit me to say that urethral instrumentation as recklessly practiced by many is only an abuse of the patient, and may result in much injury to the healthy parts of the urethra. The urethroscope is commonly used as a toy to the delight of the patient who marvels at the introduction of an electric light into the urethra. Any novice can insert a urethroscope, but urethroscopy to be understood requires as much practice and experience as proficiency in the use of the ophthalmoscope. Chronic gonorrhœa demands in order to cure it, destruction of gonococci, remaining as a latent condition from the acute stage, especial attention to destroyed or denuded areas of mucosa, infected follicles, the removal of new growths by chemicals or electric cauterization, treatment of diseased prostate and vesicles. Of less common occurrence is infection of the lower urinary tract, as acute exacerbations, from chronic gonorrhœal pyelitis. If chronic gonorrhœal pyelitis or prostatitis exists never hope to cure the urethra until these diseased foci are respectively treated. One or

[2] Jour. Amer. Med. Assn., 1905.

both kidney pelves may be treated by urethral catheterization and pelvic lavage of the kidney with the same antiseptic solutions as are used for the urethra.

Paraurethritis, where the infected focus is entirely outside of the urethra, possibly in the glans penis, may cause recurrent gonorrhœa of the urethra of years standing. Such condition is reported by me in the *American Journal of Dermatology and Genito-urinary Diseases,* in April, 1909.

THE VACCINE OR BACTERIN TREATMENT.

This is the most modern innovation in the treatment of gonorrhœa and its complications. The work of Wright in opsonic investigation has made gonorrhœal vaccine a possibility. That vaccine has a diagnostic as well as a therapeutic value cannot be doubted, but on this point those who have reported its use do not fully agree, in all phases of the subject. Personally, I have found that in some cases it will arouse latent gonococci, but does not act exactly similar to tuberculin, in regard to uniformity of results, as a diagnostic means. It is common to observe a rise of temperature after the initial injection subcutaneously, or observe a zone of hyperæmia around the site of the needle puncture for several days after the injection. In my record of twenty-four cases treated by vaccine seldom was pain complained of. In one case marked furunculosis of arm and neck followed the initial injection, with enlargement of axillary glands. If urethral gonorrhœa and prostatitis is complicated with pus germs, which is only too common, the gonococcus vaccine must be fortified with injection simultaneously of mixed strains of the staphylococcus vaccine. This fact must not be lost sight of. To date there is no mixed or combined gonococcus and staphylococcus vaccine on the market, and the Department of Experimental Medicine of Parke-Davis & Company, of Detroit, are kindly experimenting in this line according to my suggestion. Future experimentation may make such a mixed vaccine a possibility. I believe vaccine and biologic therapy should be used only as an adjunct in treatment at the present time, and in no sense as a total substitute for local and internal medication. Gonorrhœal prostatitis requires in addition to injection of vaccine, massage treatment of the posterior urethra and internal administration of drugs as correctives for urinary abnormalities.

Aronstrom[3] reports fifty-four cases of acute and chronic gonorrhœa and complications, in which vaccine was used with favorable results in the acute stage, and he is somewhat skeptical about its efficiency in many of the chronic stages of gonorrhœa. I am not enthusiastic about the use of vaccine in the acute stage, but have had better results with it in the chronic. Irons[4] observed thirty-one cases of infection, and goes into some detail about the results, which is very interesting. He says: "The reliability of the clinical gonococcus reaction as a diagnostic procedure will be determined after many

[3] Jour. Amer. Med. Assn., 1908.

[4] British Medical Journal, 1908.

tests. There may well be cases of gonococcus infection that do not respond."

The good results that I have observed with gonococcus vaccine were in chronic cases, with articular and prostatic complications. That the gonococcus, in pure culture is found in the circulation is an established fact. Many cases are reported corroborating this statement. I reported a case in the *Courier of Medicine* nine years ago, with joint and heart complications in a boy of seventeen years old, in which the gonococcus was cultivated from blood from the median basilic vein. At that time the opsonic treatment was unborn, and we could not take advantage of using vaccine, as there was none on the market. Vaccine therapy is still in its infancy, and to date accounts of treatment with it in acute urethral gonorrhœa are at variance, and are not in harmony as to the ultimate results and benefits derived therefrom.

I believe that only too commonly acute urethral gonorrhœa is a mixed infection, in which the staphylococcus, in mixed strains, plays a prominent rôle. It may be possible, therefore, since this is the case of mixed infection in this disease, that the gonococcus vaccine, when used alone, does not give satisfactory results. Therefore at some future time I may be able to report what progress is made in the treatment with the mixed staphylococcus and gonococcus vaccine. I have asked the Biological Department of Parke-Davis & Company to make one cubic centimeter bulbs, each holding 400 million staphylococci and 100 million gonococci, combined. I have used both these vaccines as they are on the market to-day uncombined. The advantage of combining them in a single solution is that one injection need be given, instead of two punctures being made for two separate vaccine injections.

THE CURE OF GONORRHŒA.

When is an acute case of gonorrhœa cured? This is a mooted question. Extremists of the German school, typified in Noegerrath, claim that gonococci in the male, as well as in the female, persists for life in the organs of generation, notwithstanding the apparent cure of the acute infection. This statement is influenced, and possibly prompted by the fact, that of women, who have fatal diseases of the uterus and adnexa, 80 per cent. have been found to succumb to gonorrhœal infection. Many patients dismiss themselves from treatment before they are cured, only desiring cessation of the urethral discharge. On the other hand, many cases are considered chronic, which are virtually long continued acute cases withstanding the element of time. A red, swollen meatus, a profuse purulent discharge, no matter how long it has existed, must be treated as acute gonorrhœa. Fuller[5] believes that the systemic infection in the male, due to uncured gonorrhœa, enters from a special focus, chiefly the seminal vesicles. He excised the seminal vesicles twenty-three times for the cure of gonorrhœal arthritis.

When all secretion and discharge has ceased from the urethra, or cannot be expressed therefrom by stripping it, and the meatus is not glued together, especially in the morning on arising, and there are no shreds in the freshly

[5] New York Med. Jour., 1908.

voided urine, it is a common teaching to regard a case as cured. The urine is not always an index of existing conditions in the deep urethra. I have known of many cases of chronic posterior urethritis, with ulceration, etc., and especially chronic prostratitis, when the urine passed in two or three glasses, was macroscopically crystallinely clear and apparently normal. At this time the patient should be put on a liberal allowance of malt and spirituous liquors, especially beer, for several successive days and indulge in moderate exercises, as a test to determine if any recurrence happens.

The acme of all treatment should be to keep gonorrhœa a local urethral disease and prevent if possible its dissemination and metastasis by the lymphatic and circulatory systems to remote parts and organs of the body, when it becomes a systemic infection, endangering life and much worse in some of its ultimate consequences than syphilis.

Neisser, one of the benefactors of humanity, the discoverer of the Gonococcus, says: "Although I am always advocating that every medical man should be taught how to treat acute gonorrhœa efficiently from every point of view, the estimation of the chronic cases of urethritis requires such special technicality and practice as cannot possibly be possessed by every practitioner, quite apart from the circumstances that not every medical man can have at his disposal the laboratory arrangements, required for the preparation of cultures, etc."

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THE REVISION OF THE LAWS RELATING TO CHILD LABOR BY MEANS OF THE ROENTGEN RAY.*

By THOMAS MORGAN ROTCH,
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In studying the great wave of reform in connection with child labor, which has lately been spreading all over the country, we are at once struck by the evidence of possibly an unwise legislation resulting from this movement. In certain States there is no doubt but that the laws in regard to labor have been, and even now are, not only wrong and pernicious, but unwise and blind. These laws have been mostly based on chronologic age. In South Carolina the age at which a child is allowed to work in a mill has, for years, practically been placed at ten, with the proviso that if the child's parents are dependent the child, shall be allowed to work. Although many attempts have been made to change this law in the interests of the child, yet these attempts, up to the present time, and especially lately, have proved to be a signal failure. Resulting from this, the philanthropic public, especially those who are interested in this reform in connection with child labor, have jumped at the conclusion that to improve the law a later age than that proscribed by the States should be fought for.

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* Delivered at the Jefferson Medical College, Philadelphia, December 28, 1908.

Although the intentions of the child labor reformers and enthusiasts are more than good, for their devotion to the cause and their self-sacrificing interests are evidenced everywhere, yet their energies are being directed on lines which are really contrary to the true interests of early life. It would be well, therefore, for these thousands of advocates and friends of children to investigate a little further this question of chronologic age, and in doing this to make use of the knowledge on this subject which has evolved from the careful investigations of the medical profession, and which has long ago proved that chronologic age as a guide to and an index for the grading of children for labor in mills and other sources of income for their parents, or for themselves, is a delusive one.

The number of years that a child has been born does not necessarily mean that a group of children can be given the same amount of work with its consequent physical fatigue. At least, if this is done, some of this group of children will inevitably suffer. Twenty boys, whose chronologic age may all be eleven years, may differ very materially in the degree of their development, which indicates their strength and their ability to perform certain kinds of work.

For some especial piece of work, some of these boys may be entirely unfit, while others, again, may be well fitted for work even more arduous. Some of these boys of eleven years may only show the stage of development which corresponds to nine or ten years, while others may present that of twelve or thirteen years. It is, therefore, manifest that, so far as work is concerned, these boys should be graded according to their physical development, rather than to their chronological age. Resulting from this, if the laws are to be changed and improved, these laws should be based upon degrees of development, and, instead of saying that a child should be allowed to work in the mills at a certain age chronologically, it should be stated that they should be allowed to work in the mills when their especial stage of development indicates that they are able to do this work without harm to their health. In this way the work can be properly done without our having thrown on our hands citizens who have been weakened and in that sense crippled, both in body and mind, by an unwise legislation which has not looked out for the health and vigor of our future citizens. Of course, we must consider the educational side of this question. Education, however, should work hand-in-hand with the rules for good hygiene and general physical development. Unless this is done the rules for education will simply hamper the production of strong and healthy brains, and will, inevitably, defeat their own purposes.

In regard to the laws connected with child labor, we should consider not only how we can best influence our legislators to carry out the necessary reforms in connection with early life, but, after the laws have been revised and changed, how we are to aid in the determination of the best and the surest way to carry out these laws. This can be accomplished by a knowledge of the means which the Roentgen ray has given us to determine the degree

of physical development present in each individual child. By means of the Roentgen ray this can be accomplished very rapidly, in perhaps one or two seconds for each child. After a careful study for a number of years of the development of young children in respect to the development of their bones, I have found that such development can best be determined by the progressive changes which take place in connection with the growth of their joints. A still further study has shown me that, in all probability, the best index to this growth is represented in the development of the bones of the wrist. Still further, that the most exact information can be obtained from a combination of the growth of the carpal bones with the lower epiphyses of the radius and ulna. The greater the number of these bones present, the more advanced their ossification, and the more they are massed, the greater is the possibility for anatomic strength in the wrist and, resulting from this as a possible index, we may be able to determine the general development and strength of the individual.

In making laws, therefore, for the grading of children, it would be far safer to determine what work each child is fitted for by grouping them in divisions, for instance, A, B, C, and in this way the law will not permit a child to perform certain labor until it is fitted to perform such physical labor without harm.

PRACTICAL ANALYSIS OF THE GASTRIC CONTENTS.

By EDWARD C. HILL, M.D.,
Professor of Chemistry, Denver and Gross College of Medicine.

For a test breakfast it is my custom to have the patient take a full pint of hot water and one shredded wheat biscuit, without butter, sugar or cream. The gastric contents are removed one hour later with the ordinary tube. The quantity obtained in this way is normally from 60 to 90 cubic centimeters. Above 90 cubic centimeters indicates gastric atony or pyloric obstruction (differentiated by palpation, percussion and succussion). Less than 60 cubic centimeters points to pyloric insufficiency ("achylia gastrica"). Organoleptic evidence as to odor (may be putrid in carcinoma), color and viscidity particularly, is of equal value with chemic tests. The specimen should be filtered for the chemic tests, using preferably a large funnel and filter paper to correspond.

The reaction is tested with litmus paper, and should be frankly acid. To distinguish mineral (HCl) from organic (lactic, acetic, butyric) acidity, I use a 1:1000 aqueous Congo red solution, adding two or three drops of this to one-third test-tubeful of water, and then a few drops of the gastric filtrate. Free mineral acid gives a sky-blue color; organic acids show violet. In case of doubt, I resort to Boas's or Günzburg's reagent, evaporating with the filtrate carefully on the water-bath, watching for the red or purple line (positive for HCl) as the fluid dries.

Uffelmann's reagent (10 per cent. ferric chlorid solution) still appears to me best for lactic acid, using a tube of distilled water for comparison with the gastric filtrate and dropping the test fluid alternately into either tube. In this connection one should not mistake the brownish color due to much swallowed saliva for the lemon-yellow hue of ferric lactate. The test is made more delicate by shaking out lactic acid (if present) with ether, agitating the ethereal extract with distilled water, and adding one or two drops of the ferric chlorid solution. Lactic acid is not volatile, whereas acetic and butyric acids are volatile and can be detected by heating some of the gastric filtrate in a test-tube, at the same time holding a slip of moistened blue litmus paper in the mouth of the tube.

The quantitative estimation of the various acid factors is readily effected by the Toepfer method, for which four reagents are required: 1. Decinormal sodium hydrate. 2. A 1-per-cent. alcoholic solution of phenolphthalein, to indicate total acidity. 3. A 1-per cent. aqueous solution of sodium-alizarin sulphonate, to indicate all acids except loosely combined HCl. 4. A 0.5-per-cent. alcoholic solution of dimethyl-amido-azobenzol, to indicate free HCl only.

A 10-cubic-centimeter buret is filled to the mark with the alkaline reagent. Five or 10 cubic centimeters of the gastric filtrate are placed in a small beaker, one or two drops of the phenolphthalein indicator added, and the liquid titrated with the decinormal solution till a permanent red color is produced. To another equal portion of filtrate a few drops of alizarin solution are added, and the whole titrated with the alkaline solution until a pure violet color is attained. A third portion of filtrate, to which a few drops of the dimethyl-amido-benzol have been added, is titrated with the alkali until the red color due to free HCl (if present), turns yellow. By multiplying the number of cubic centimeters of $\frac{n}{10}$ alkali required for each step of the procedure by 10 or 20 (according as 10 or 5 cubic centimeters of the filtrate are employed), we get the alkaline equivalents per 100 cubic centimeters of filtrate for each item—normally (when the patient takes a full pint of water) 40-60 for total acidity, and 20 to 35 for free HCl, the remainder being chiefly combined HCl; acid phosphates, for practical purposes, can be disregarded.

Hyperchlorhydria obtains in gastric ulcer (which sometimes precedes cancer), gastrosuccorrhœa (with large amount of fluid), and rarely in benign irritative pyloric obstruction. Hypo- or anachlorhydria is observed, with converse amount of lactic acid, in gastric cancer and also in asthenic gastritis and pernicious anæmia. Neuroses are marked by great variations, from anachlorhydria to hyperchlorhydria, in the chemistry of the gastric contents.

For pepsin determination I employ a freshly prepared aqueous filtered solution (about 1:1000) of egg albumin. To 10 cubic centimeters of this solution in each of two beakers one drop of strong HCl is added. Then to one beaker 5 cubic centimeters of distilled water are added; and to the other, 5 cubic centimeters of the gastric filtrate. The two beakers are kept at about 98° in the incubator for one hour, when a part of the contents of

each is centrifugated for three minutes with twice as much Esbach's solution. The difference in the readings of the ppts. now observed represents the action of pepsin. For example, if the tube without gastric filtrate shows 5 per cent. by volume of albumin sediment, while that containing said fluid yields 2 per cent. of sediment, pepsin (or pepsinogen) is 60 per cent. of the par value, which, however, it seldom quite reaches. The estimation of chymosin (or chymosinogen) is of no great practical value, but is easily effected by keeping a mixture of equal volumes of neutralized milk and neutralized gastric juice at body temperature for fifteen minutes, when, if rennin secretion is normal, complete coagulation takes place. These two chief ferments of the stomach are notably diminished only in malignant or non-malignant atrophy of the glands.

An idea of the relative digestive action of the saliva and the gastric secretion can be had by making the biuret test with a little of the gastric filtrate (peptones and albumoses, pink; less digested protein products, violet), and by adding a drop of Gram's solution to another portion of filtrate—blue or violet, unless excessive amylolysis (no color except that of iodine), due to deficient inhibition by HCl.

Microscopic examination of the solid portions of the removed gastric contents is of a certain confirmatory value. The presence of the large club-shaped Oppler-Boas bacilli (readily stained with gentian violet), at one time regarded as pathognomonic of cancer, indicates merely a favorable medium for their growth, *i.e.*, lactic acid. Yeasts and sarcinæ are found commonly in non-malignant fermentive conditions, as in dilated stomach. Certain moulds may give to the specimen a green appearance, which is usually due, however, to bile aspirated through an atonic pylorus. Pus is seldom seen, as gastric abscess is rare, but blood is not uncommon in slight amount from the irritation of the tube. Considerable dark, foul-smelling blood is strongly suggestive of cancer. Mucus and swallowed saliva are very common ingredients of the gastric specimen. Pavement epithelia from the throat are much more frequently observed than the columnar cells of the stomach. While atrophic and ulcerating tissues in general are more subject to abrasion than when normal, yet typical nests of cancer cells are hardly ever encountered in the routine examination of the gastric contents.

Editorials

THE MILK SUPPLY OF CITIES.

The milk supply of cities is a matter of great importance as regards the purity and healthfulness of the milk. It is a problem that grows more complex and difficult as the centers of population become more crowded. The careless handling by the dealer and in restaurants often renders it unfit as a food. The care of the cows, the sanitary conditions of the stables and the precautions

taken in milking are likewise matters of importance as regards its purity. Too many farmers know not how to properly obtain and care for the milk. While they appear and endeavor to be cleanly, yet they know not the first principles of sanitation and hygiene. In case of sickness among them they exercise very little precaution against the spread of the disease, and with the many dealers to consider, it is almost impossible to trace the source of a particular sample. In fact, we are obliged to depend largely upon chemical and microscopical tests to ascertain the purity and quality of the supply.

Various experiments have been devised in order to modify the purity of the milk as it is found on the market. Pasteurization is practically of no value except that it may check the fermentative process, and pathogenic micro-organisms are not affected in the least. The nutritious quality of milk is also of immense importance to a vast number of invalids, in addition to infants, who are obliged to subsist more or less absolutely, more or less continually, upon a milk diet.

While this city's milk supply is fairly satisfactory, yet there is still much room for improvement and at a special meeting held at the College of Physicians a few weeks ago, it was suggested and argued out that the milk supply would not be bettered until the price to the consumer was advanced one cent per quart and the small dealer wiped out. This would undoubtedly be a step in the right direction and would insure better sanitary conditions on the farms and a more careful handling of the milk by persons healthy and free from contagious diseases. Nature teaches us directly and unmistakably what is the best food for the young babe. This is milk as it flows from the clean breast or udder—fresh, pure, uncooked, unsterilized, unpasteurized. Such is Nature's supply upon which man cannot improve. Much money has been expended by the noble generosity of individuals in the attempt to purify the milk of dealers and especially of those whose trade lies in the poorer districts. Nevertheless, no amount of pasteurization is capable of purifying an impure milk. If it becomes contaminated with putrefactive bacteria or with such that are specific for certain diseases, it should be totally rejected. It cannot be renovated.

This problem needs to be attacked with more hope of success from its other end—the origin of the milk and scrupulous care in its transit from the dairy to ultimate destination in the city. This phase of the matter, we believe, should be controlled by the strict enforcement of municipal and State supervision of the industry from beginning to end. Under the authority of well-conceived laws, regulation of the milk trade could be thoroughly and satisfactorily accomplished at comparatively little cost. With a pure supply there is no need for artificial purification or rather attempted purification.

The care of the cow as regards food and hygiene; the grooming of the animal; cleanliness of the stable; dairymen and utensils; the vessels in which the supply is collected and stored for transmission to market; the rigid supervision in other words, of every step in its progress toward the consumer. Such methods would be productive of *pure, wholesome, nutritious* milk and still further lower the infant mortality from intestinal disorders.

We are waiting with hope for the day when, by the collaboration of city and State, unadulterated milk will be furnished at reasonable cost to the poorest inhabitant.

EDUCATION FOR DEFICIENT CHILDREN.

Educators and physicians all over the country have long felt the need of a better system for the education of mentally deficient and backward children in this country. At the same time provision should also be made for those inclined to disease, especially tuberculosis. In some of the foreign countries great effort is being made to provide for the education and physical development of these unfortunate little ones. Much can undoubtedly be done for them individually and at the same time the spread of tuberculosis among school children be decreased. Little provision for the education of these children has thus far been made in America, but we hope to see the day soon dawn when every city and town in this land may have a special public school to nurture and care for them.

Too many of the children, especially those of the poorer classes, are considered mentally deficient, but very often it is found that these unfortunate ones are not deficient by virtue of lack of brains, but because they are chronic sufferers of either defective sight, hearing or difficult breathing, owing to adenoids and enlarged tonsils. Correction of these infirmities would undoubtedly result in mental activity and progress, and for this very reason our larger cities have regularly appointed physicians who visit the schools and carefully examine all the pupils for any infirmities. Such vigilance not only is productive of mental power but largely lessens the number of contagious diseases existing among the school children.

The government of California has probably done more along this line of education than any other State in the Union. Dr. Walter Lindley, of Los Angeles, who has been appointed commissioner by the government of California, to investigate the subject, spent some months in Europe, mainly in Paris and London, to study the system of education of the mentally deficient and backward children. He said, "I have been most impressed by the schools in London, of this kind. London, in this respect, is far in advance of any American city, and has established out-door schools which I consider most beneficial for children of the poor who are weak, abnormally backward or inclined to disease. I can speak only with the utmost admiration of such schools as that in Lordship Lane, Stoke Newington, where ninety unfortunate little ones are given most only mental instruction, but taught gardening and other out-door work.

"They receive a wholesome and hearty luncheon at school, and before they return to their homes are made to lie down and rest two hours in the afternoon, either on cots or on the ground according to the bodily condition. The effect is to correct morbid physical tendencies and strengthen the body, gradually inuring it to fatigue and exposure, and stimulate mental action at the same time." Similar methods should be adopted in America and we feel sure that such efforts would be most productive of good results.

Materia Medica and Therapeutics

ADRENALIN IN INTESTINAL HÆMORRHAGE.

Dr. C. J. Wiggers, Detroit has performed a number of experiments with this drug and has arrived at the following conclusions:—

1. Large doses of adrenalin (0.05 to 0.1 mg.) cause a short preliminary increase in hæmorrhage, followed quickly by a decrease or cessation of bleeding. On account of the great preliminary loss of blood they are always contraindicated.

2. Small doses of adrenalin (0.01-0.025 mg.) cause little or no preliminary increase, but shortens the course of hæmorrhage. As they save the red blood cells in every way, they are therapeutically desirable.

3. The method of introducing adrenalin determines the effect of blood-pressure and hæmorrhage. The subcutaneous administration does not give any results. A slight elevation of pressure and a simultaneous checking of the hæmorrhage can be obtained by continuous intravenous injections of weak solutions. This may also be accomplished by intramuscular injection.

4. Adrenalin is not indicated in all intestinal hæmorrhages. The condition of the blood-pressure is the criterion for its use. In hæmorrhages of short duration when the pressure has not fallen to any extent, a judicious use of nitrites proves of more benefit than adrenalin. When the bleeding has been profuse, however, and a low pressure already exists, it becomes vital that hæmorrhage should be checked without further reduction of pressure. Adrenalin is then very useful.

5. The use of adrenalin should always be closely followed by blood-pressure observations. The pressure should be carefully estimated after a dose below the safety limit has been tried. If no rise occurs, gradually increasing doses may be injected until a slight elevation of pressure is present, in which case we may be certain that enough has been introduced to effect hæmorrhage, and at least no significant preliminary increase has resulted. (Archives of Internal Medicine, March 15, 1909.)

ADRENALIN; ITS ACTION ON THE SKIN.

Dr. G. Sardou discusses the remarkable benefits to be derived from painting the skin with adrenalin. His results are based upon the results obtained in 54 cases during the last six years. Among the conditions treated were toxic erythemas, urticaria, acne, sunburn, bee sting, eczema, pruritus, nevus, contusion, inflamed chilblains, headache, and congestion of the face from indigestion, sciatica without neuritis, arthralgia, arthritis, varices, etc. The adrenalin applied to the skin is rapidly absorbed and acts on the vessels in the region. Durable vasoconstriction is obtained by a moderate, graduated application of the adrenalin, renewed according to the effects produced. Too large a dose, at first, paralyzes the reaction. Hæmorrhoids are benefited when moderate and recent, unless they are the result of portal hypertension. The measure may also fail on account of sclerosis and paresis of the walls of the vessels. The effects of the adrenalin are similar to those of constriction hyperæmia. When applied locally it re-

enforces the local defenses without waiting for general reactions, the outcome of which it is impossible to foresee. The adrenalin is able to act in the depths of the tissues and to aid their defensive efforts, or the adrenalin may arouse them to more effective resistance. (Annales generales de Medecine, Paris, February, 1909.)

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF CHRONIC TUBERCULOUS EMPYEMA.

Dr. Wenckebach states that remarkable results were derived by introducing air into the closed chest and thus evacuating the pus. He aspirated by means of this method as much as two liters in patients who were in a threatening condition. The rubber tube through which the fluid was aspirated was closed with a stopcock; the tube was plugged with sterile cotton, the stopcock opened and air allowed to enter the chest. As the oppression and pain ceased the patients breathed with a sigh of relief. The puncture hole was then closed. The absorption of the air left a partial vacuum and the negative pressure resulting was sufficient to draw out the lung, so that it expanded finally and the patients were practically cured. He commends this simple technique to every physician, as often an effectual means of treating chronic tuberculous empyema, transforming the pyothorax into a pyopneumothorax, repeating the injection of air at intervals of from three to six weeks. By the end of eleven weeks in his first case there was no further trace of either the pyothorax or pneumothorax, as also after fifteen months in the other case. There is no necessity for a mutilating operation or complicated apparatus, and air answers the purpose just as well as oxygen. In the third case which he reports, the results were less favorable, and the experience with this case indicates that success depends on the lung being in contact at some point with the chest wall. (Mitteilungen aus den Grenzgebieten der med. und Chir., Jena., 1909.)

BRONCHIAL AFFECTIONS, RAISING THE FOOT OF THE BED IN THE TREATMENT OF.

Dr. P. Schäfer reports the experiences at Quincke's clinic, at Kiel, with the sloping position suggested by Quincke to utilize the force of gravity to promote expulsion of bronchial secretions. The patients lie flat in bed, on the back, the head turned to one side to be able to expectorate more readily. When they have learned to do this, the foot of the bed is raised from 8 to 12 inches for two or three hours every morning, before 9 A. M., and again in the evening if desired. It is astonishing to observe the amounts of secretion which are expelled at times under these conditions, the patients being relieved so that they are free from cough and expectoration for the rest of the day, and fever from the retained secretions rapidly subsides. In the 29 cases related, benefit was pronounced whenever it was possible to influence the accumulated secretions by force of gravity. The method is especially useful for all cases of sac-shaped and cylindrical bronchiectasia of the lower lobes, accompanied by chronic cough and expectoration. It is also useful in catarrhal conditions, with acute onset but long protracted course, especially in elderly people with their less elastic thorax and bronchi. The method is also valuable for locating the source of the secretion by the success or failure of the measure. (Deutsche Archiv. für

Klinische Medizin, Leipsic, February 13, 1909.)

CARBONIC DIOXIDE SNOW, USES OF.

Dr. M. L. Heidingsfeld says that this carbon dioxide snow is specially well adapted for the removal of pigmented and selected types of vascular nevi. In removing tattoo marks it is not particularly efficacious and possesses a doubtful and rather negative value in the successful treatment and permanent cure of lupus erythematosus. It commends itself for certain forms of senile keratoses and degenerations of the skin. It is still a remedy of too tentative a character to commend itself as the method of choice in epitheliomata, common and venereal warts, lupus vulgaris, leucoplakia, lichen planus and a host of other cutaneous affections. Carbon dioxide snow, however, is an agent that commends itself to every dermatologist as a therapeutic agent of unquestioned merit, worthy of an indispensable place in dermatologic practice. (Lancet Clinic, January 30, 1907.)

EMPYEMA, TREATMENT OF, BY FLUSHING AND SUCTION.

Dr. W. Pust discusses a simple modification of the present techniques of draining empyema of the pleura. A curved trocar with a number of openings is introduced just below the upper limit of the empyema and another, curving upward, just above the lower limit, has a stopcock and each is fastened in place with strips of adhesive plaster. Under control of the pulse the stopcock is opened in the lower, and then in the upper trocar. If the pus flows out readily, as much is allowed to escape as the patient can tolerate. The flow can be promoted by change of position or by connecting the upper trocar with an irrigator and rinsing out the pleural cavity with hot water or a solution of potassium permanganate. These rinsings are repeated once or twice daily, closing the stopcocks in the interim at first. Later it may be an advantage to apply suction to one of the drains. This technique avoids the danger of thoracotomy and sudden pneumothorax. It does not require general anæsthesia or assistance, but can be done under ethyl chlorid, and the patients can be up and about at once. It thus avoids the shock of an extensive operation just when they are least fitted to stand one. (Deutsche medizinische Wochenschrift, Berlin, February 25, 1909.)

EMPYEMA OF THE NASAL SINUSES, TREATMENT OF.

Dr. Mortens describes a suction apparatus of his own construction, which he claims is of great aid in the diagnosis of suppuration of the ethmoidal cells and the sphenoidal and frontal sinuses. This apparatus is especially valuable in diagnosing suppuration of the ethmoidal cells. The apparatus consists of a suction pump to which a muck nasal tip is attached by means of hose with a vankumeter intervening to register the suction power. Suction being continuous.

With the apparatus in motion and 10 to 15 cm. mercury pressure registered, the muck tip is placed into one of the nostrils of the patient. The patient is then instructed to repeat the word "Tik" to bring about the shutting off of the naso from the oral pharynx. The patient's other nostril is then closed by applying pressure with the finger. The lateral opening of the nasal tip is closed with the physician's finger, thus suction is brought about in the nasal cavity. Fifteen to twenty-five centimeters applied for three to five minutes suffices usually

to draw pus from the sinuses into the nasal cavity, when it exists. If applying suction pus appears in the nose previously free from purulent discharge, the diagnosis of empyema is made. Not only is this method valuable for diagnosis, but also for therapeutics. Ridding the cells of pus frees the mucous membrane and favors restoration. The suction applied causes hyperæmia of the tissues, which, according to the Bier theory, tends to healing. (Deutsche Med. Woch., January, 1909.)

EPILEPTIC PSYCHOSIS, TREATMENT OF.

Dr. Siemerling states that certain cases of epileptic psychosis are observed to end in recovery, in the absence of special therapeutic procedures, while the amenability of these conditions to treatment is a subject still open to discussion. There is no doubt, however, but that a favorable effect can be exerted upon the course of the epilepsy, and therapy upon the epileptic psychosis, through certain remedies, more particularly prophylactics, for the control of the attacks, by means of abstinence from alcohol, a suitable diet (restriction of meat, in favor of milk, vegetables, fruit); improvement of the digestion, regulation of the patient's entire mode of life; attention to cardiac or vascular disturbances and other organic affections. In a number of cases, a threatened attack may be aborted by the administration of large doses of bromides (10 to 14 Gm. daily). The bromides are at the same time the sovereign remedy for the epileptic disturbances. It is useful to combine the remedy with the ingestion of large quantities of water. When bromism or acne make their appearance, the use of the remedy should be interrupted for some time. In the presence of cardiac disturbances, the simultaneous administration of adonis vernalis, strophanthus, or digitalis, as advisable. No particularly favorable results have been found to attend a salt-free diet. Other procedures entering into consideration for the control of the excited states, besides the customary measures (isolation, baths, packs) consist in sedatives, such as large doses of bromides, amylen hydrate, chloral hydrate, isopral; injections of duborsin-hyoscyamin; and chloral hydrate enemata. (Berliner klin. Woch., No. 1, January, 1909.)

HYDROCEPHALUS, CHRONIC IDIOPATHIC INTERNAL, CURED BY DRAINAGE OF THE VENTRICLE.

Dr. Halben states that all the main symptoms have retrogressed since the operation done by Payr last October. The patient was a girl of sixteen; Payr introduced into the right lateral ventricle a piece of an artery about 2 millimeters in diameter taken from a calf. The artery had been hardened in formalin and dipped in paraffin, and was fastened to allow communication between the ventricle and the epidural and subdural space at the top of the head. The headaches, choked disc, nystagmus, abducent paralysis and tremor all vanished once or by the end of a month, and vision, which had been ½ on each side, was ⅘ and ⅘ when the patient was discharged two weeks after the operation. Slight headache at times is the only trace left of the former trouble, except that the papilla looks a little dirty. The patient had always suffered more or less from headache, but the other symptoms first developed about five months before the operation. (Deutsche medizinische Wochenschrift, Berlin, March, 1909.)

INGROWN TOE-NAILS, TREATMENT FOR.

Dr. W. Stoeckel, Marburg, describes the operation as follows: Twenty-four hours previous to the time of operation the foot and toes are thoroughly scrubbed with tincture of green soap, after which the nail is trimmed straight across its free border and the surface exposed and thoroughly cleansed. Tincture of iodin is now applied around the entire margin of the nail and a 1-2000 bichlorid of mercury dressing applied. At the time of operation, the parts are again scrubbed thoroughly. Hæmorrhage is controlled by a rubber band around the base of the toe and local anæsthesia obtained by injection of a weak cocaine solution. With a sharp scalpel the nail is split down its center and to the bone; the next step is the freeing of the matrix and lateral border of the nail by an incision down to the nail almost three-sixteenths of an inch from the lateral border extending back beyond the base. The scalpel is carried along the outer border which is lifted up and the scalpel is directed close to the bone, under the matrix, to within one-quarter of an inch of the median line. The freed lateral border is then elevated with the handle of the scalpel and the matrix beneath is removed and the sides elevated are allowed to rest on the healthy tissues. A strip of gauze is inserted underneath the edge and a wet dressing of magnesium sulphate applied. For a few days the foot should not be used. The advantages of the operation seem to be that of simplicity, radical cure, minimum tissue destruction and decreased suffering from pain, rapid restoration of the normal condition of the tissues and short period of convalescence. (New York Medical Journal, February 20, 1909.)

INTRAORAL CANCER, OPERATIVE TREATMENT OF.

Dr. C. P. Childe draws the following conclusions from an experience of thirty-nine cases: The neck should always be attacked first, with ligature of the lingual and facial arteries on one or both sides. This manœuvre reduces the excision of the primary growth, provided that it can be extirpated without division of the jaw, to an insignificant and bloodless operation, which can consequently be frequently performed without danger immediately after the neck operation. It enables the primary growth to be removed with great precision. It does away with all necessity for preliminary laryngotomy and tracheotomy. It cuts off the blood supply to the tumor in the interval, if the operation has to be divided into two stages. It will possibly starve cancer cells which may be left behind after attempted extirpation of the disease. In my experience it is the key to the operation.

The second principle is that a communication between the mouth and the large wound in the neck should always be avoided where possible. Unless the disease be situated in the tonsil or its neighborhood, and except the patient insist on a single operation, this can always be accomplished by dividing the operation into two stages in those cases in which, for the satisfactory removal of the disease, the lower jaw requires division. The neck, as before, is attacked first, and the lingual and facial arteries are tied. When, in a fortnight, the large wound in the neck is healed, the jaw is divided and the primary growth is excised, as before, bloodlessly. In conclusion, as regards final results, early diagnosis is the only hope. With this view, the therapeutic test of cancer,

iodide of potassium, should be relegated to the limbo of dangerous playthings. Immediate microscopic examination of a piece of the growth should be the only test, and the therapeutic test should never be employed, unless the microscopic report is doubtful. It should then be pushed rapidly, and its effects not watched too long. (British Medical Journal, January 2, 1909.)

MAXILLARY READJUSTMENT.

Dr. G. V. I. Brown, Milwaukee, Wis., explains and illustrates the method of exercising direct pressure on the maxillæ originated by him, and describes its advantages. He thinks that probably too much stress has been laid on local factors, adenoids, etc., in the etiology of palatal deformities, and that a general tendency to irregular development must be reckoned with, as a chief cause in most of these cases. The appliance used by him for separating the maxillæ consists of bands attached to the cuspids and molar teeth on each side, so joined that when a bar with screw and nut is attached across the palate in the bicuspid region, the force applied by turning the nut will cause pressure against all the teeth on each side of the dental arch. Only very gentle pressure is used, and very little pain or inconvenience is caused in producing a marked separation of the maxillæ in this way. The relief of the contracted nasal conditions is at once apparent, and it is a curious fact that children suffering from nervous symptoms attributable to nasal obstructions, almost immediately become less nervous, have better appetites, and otherwise show improvement, even while the appliance is still fixed in their mouths. Brown believes that this treatment can be made of great value in safeguarding against tuberculosis. There are thousands of children who are unquestionably more susceptible to pneumonic and bronchial affections on account of imperfect breathing, and methods to improve this function will be a factor deserving consideration. In case of harelip and cleft palate, compression methods are called for, and his methods for this purpose have been described in former articles. (Journal of the American Medical Association, March 18, 1905, and March 2, 1907.) In his summary Brown says: "In otherwise normal cases the maxillæ should be separated to improve contracted nasal conditions, and the earlier this may be done the better the result. In infants with harelip and cleft palate, the parts should be readjusted by gradual methods, care being taken not to disarrange more than may be actually necessary, those structures which, though invisible, are nevertheless in course of development. In cases in which very wide fissure actually exists, the width of the fissure should be reduced and the form of the palate corrected before plastic operation for closure is attempted." The benefit to health and general development of growing children thus cared for, he thinks, can not be overestimated. (Journal of the American Medical Association, March 27, 1909.)

MENINGOCOCCAL SERUM IN EPIDEMIC MENINGITIS.

Dr. Lange has studied the figures of two epidemics of epidemic meningitis, during which eighty-five cases were admitted into the Augusta Hospital at Cologne. In each case the diagnosis was confirmed by the discovery of Weichselbaum's meningococcus. During the first and the more severe epidemic, between March and September, 1907, fifty-seven

cases were admitted. Fourteen of these were not with serum at all; of these, thirteen died (92.8 per cent.), four of which were dying on admission. Thirty-seven were treated with serum, but not systematically; of these, twenty-three (62.1 per cent.) died, of which one was dying on admission, one died from septic infection of a puncture wound, and two from hydrocephalus; if these four are excluded the mortality is reduced to 51.3 per cent. During the second epidemic, between December, 1907, and October, 1908, twenty-eight cases were admitted. Of these, twenty-four were treated systematically with large doses of serum (adults 30 to 40 cubic centimeters, children 10 to 20 cubic centimeters), on an average every other day, but, if necessary, more often. The injections were intradural. Of the twenty-four nine died (37.5 per cent). Lange considers the numbers too small to show definitely whether an early resort to serum would give better results than when the serum is given late; but the figures given suggest that this may be so. No harmful effects of the serum injections were observed. The low mortality of the cases in the second epidemic is, at any rate in part, accounted for by the milder nature of the epidemic. (Med. klin., February 21, 1909.)

MOLES AND MORE OR LESS EXTENSIVE NEVI, TESLA CURRENT IN THE TREATMENT OF.

Dr. Aspinwall Judd recommends the application of the Tesla current for the extirpation of selected nevi. This method does not favorably affect the large and extremely vascular or deep nevi with smooth skin over them. However, those with flat, pigmented, hair growths, or those only moderately vascular, the results have been uniformly good. His technique is as follows: The patient holds one electrode in the hand. The other electrode consists of a hollow glass rod, bent to any desired angle, with insulated handle, through which is drawn a copper wire, projecting one-sixteenth of an inch beyond and sealed into the end of the tube. This held far enough from the surface of the nevus to produce a heavy bombardment spark from an eighth to a quarter of an inch in length. The size of the spark is controlled by the spark gap and the amperage behind the current used. This spark is played upon the surface of the nevus for from one and one-half to three and one-half minutes. The treatment is not especially painful, and usually needs repetition about twice a week for from three to twelve treatments, depending upon the size of the spark and the size and vascularity of the nevus. The treatment converts the nevus into a dry slough, which separates at the end of from two to six weeks and leaves a smooth, somewhat reddened epithelial surface beneath. This, it may be safely assumed, will become whitened within a few months. This treatment is applicable to keloid (although in this class of cases it must be continued over a longer period of time and with a very hot spark); to localized gangrene, where it is desirable to get a rapid line of demarcation; to perforating ulcers due to obliterating endarteritis, and for the reduction of enlarged tonsils, superficial epithelioma and warty growths. (Post Graduate, January, 1909.)

NEUROPRIN IN NERVOUS DISEASES.

Dr. Roasenda has observed good results in the treatment of certain convulsive types of nervous disease by

means of neuroprin which is an extract of nervous tissue, and has been compared to digitalis, as far as its tonic action on the nervous system is concerned—as digitalis is a cardiac tonic, so neuroprin is a specific nerve tonic. The author has used the drug with success in epileptics, in epileptoid attacks, in neurasthenia (especially when marked by insomnia, mental and physical excitability followed by speedy exhaustion), in Graves's disease, and in one case of paralysis agitans. From his experience he believes that neuroprin is a good nerve sedative and tonic, and may, in certain cases, prove a useful substitute for the bromides and other cortical sedatives. He has not observed any ill effects from its use. (Gazz. degli Osped., No. 21, February, 1909.)

SCOPOLAMIN-MORPHIN ANÆSTHESIA.

Dr. C. M. Nicholson, St. Louis, reports his experience with six hundred and fifty cases of anæsthesia with scopolamin-morphin, used as a preliminary to general anæsthesia with chloroform or ether. He reviews the published cases of fatalities with this method and concludes that in no one of them can the death be attributed to the injection of scopolamin. His own experiments on animals are summarized, and he finds that they bear the drug well. His conclusions are stated as follows: "(1) The effects of the injection of scopolamin and morphin into animals is similar to that of morphin when given alone, with the exception of the injection into kittens, in which excitement instead of sleep was produced. (2) Continued repeated daily injections produce no degeneration of the heart, liver or kidneys, the physical condition is not impaired so long as the injections are given at such intervals as not to interfere with the animal's nutrition. Daily injections of from one to three times the dose given to patients produce no pathologic changes in animals. (3) The toxic dose of scopolamin and morphin in my experiments correspond very closely to that of morphin alone for the animals used. (4) The autopsy findings in animals which succumb to a toxic dose are the same as those for morphin, *i.e.*, congestion of the viscera. (5) My animals seemed to acquire a tolerance for the drugs on long continued daily administrations." Death after operation with scopolamin is, he considers, most likely due to loss of blood, sepsis or shock. It is very little toxic for animals, and certainly produces no degeneration of the heart, liver or kidneys. He has used it by injection, $\frac{1}{100}$ of a grain of scopolamin and $\frac{1}{4}$ of a grain of morphin, three quarters of an hour before giving ether, in 650 cases, avoiding the extremes of life. In 6 per cent. of the cases there was practically no result, but in the remaining 94 per cent. the patients were quieter before, during and after the anæsthesia. There was an absence of mucus in the throat, no post-operative vomiting, and a diminution of 50 per cent. in the amount of ether used. (Journal of the American Medical Association, April 3, 1909.)

VAGINAL AND CÆSAREAN SECTION, TECHNIQUE AND INDICATIONS FOR THE.

Dr. A. Dührssen gives the technique of the vaginal Cæsarean section as follows: The operation is preceded by an injection of ergotin, an incision is then made on the right side of the vagina through the perineum large enough to admit the fist of a full-sized man. The

cervix is now grasped with forceps, and the posterior lip split up to the roof of the vagina; by prolonging this incision backward the cul-de-sac of Douglas is opened, and the peritoneum separated from the uterus. The anterior lip and vaginal junction are split in the same way, and the urinary bladder separated in a similar manner; thus the anterior and posterior walls of the body are exposed for a distance of six centimeters, and this is now quickly incised with a pair of scissors, the resulting opening shows the amniotic sac large as a man's fist. A hand is pushed into the uterus, the foot of the fœtus is grasped, and the child extracted. The indications for this operation are eclampsia, in which better results are obtained by this method than by any other; placenta prævia, when the cervix is not widely dilated enough to allow of the use of a rubber balloon, and combined version, or when the delay would destroy the life of the child. The author has never seen lesions of the bladder produced by this operation. In cases of danger to the child alone with undilatable cervix, the vaginal section is indicated. (Gyn. Rund., Jahr. II, Heft 22.)

Book Reviews

Department of Commerce and Labor, Bureau of the Census. S. N. D. North, Director. Mortality Statistics, 1907. Eighth Annual Report. Washington: Government Printing Office, 1909.

In this report all the mortality statistics concerning the registration area of the United States for 1907 are given.

The arrangement of this report follows the usual division into three parts, namely: (1) Text and text table, discussing the more important feature of the returns of deaths for the year 1907, and making comparisons between the returns and the returns of preceding years; (2) summary and rate tables, presenting series of death rates for the registration area and its subdivisions for the year 1907 and the four preceding years of registration; and (3) general or primary tables, showing the detailed results of registration for the year 1907. The work is admirably arranged, and will prove of immense interest.

New and Non-Official Remedies for 1909. Containing descriptions of the Articles which have been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association, prior to January 1, 1909. Chicago: Press of the American Medical Association, 103 Dearborn Avenue, 1909.

This small book contains the descriptions of such proprietary articles which have not been found to conflict with the rules of the Council. The quantity of each active medicinal ingredient, the general composition of the vehicle, the alcoholic percentages, are furnished under the mixtures described. Also the tests for identity, purity, etc.

Proceedings of the Academy of Natural Sciences of Philadelphia, Vol. LX, Part III, July to December, 1908. The Academy of Natural Sciences of Philadelphia, 1909.

This volume consists of the proceedings of the meeting and a number of problems in the field of natural sciences. These articles are very interesting, and will prove of extreme value to special students. Thus, some of the articles are:—

"Notes on the Distribution of Colorado Mammals, with a Description of a New Species of Bat (Eptesicus Pollidus) from Boulder"; "The Directive Influence of Light on the Growth of Forests Plants"; "Recent Additions to Our Knowledge of the Flora of Southern New Jersey"; "A New Species of Cymatopleura"; "On the Teeth of Hawaiian Species of Helicina."

The articles are treated in a scientific manner, and some of them are illustrated by a number of plates.

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Department in charge of J. MADISON TAYLOR, A.M., M.D.

VARIATIONS IN THE MEDICINAL THERAPY OF PNEUMONIA IN THE LAST HALF CENTURY.*

BY A. JACOBI, M.D., LL.D.,
NEW YORK.

THE therapeutics of Hippocrates was symptomatic and palliative. He was not guided by pathological anatomy, which did not then exist, but by the complaints of the patient and distinct symptoms, such as fever, pain, dyspnœa, and the presence or absence of expectoration. He taught us to watch and follow nature, to support, and to do no harm. Fomentations, blood-letting, bathing, and glutinous or mucilaginous substances—few in number compared with the vast array of substances known to and utilized or abused by us—were his armamentarium in pneumonia and other feverish diseases. Two thousand years after him Sydenham followed the same rules.

Without any increase of positive knowledge, Asclepiades and the Arabs cut loose from the teachings of simple clinical experience. Particularly the latter built up a confused mass of therapeutic measures. Their numberless old and new medicinal internal and external aids and appliances remind us of the detrimental activity displayed by the worst class of our wholesale nostrum vendors and the frauds of modern meretricious practice.

One of the greatest men of medicine, Albertus von Haller, was the innocent cause of a nefarious change in therapeutic practice about the end of the eighteenth and the beginning of the nineteenth century. His theory of irritability and his assumption of a general vital force subjacent to and controlling every local function, gave rise to two systems of therapy which reigned

* Read before the American Climatological Association, June 4, 1909.

supreme in many decades; viz., those of John Brown, in England, and Giovanni Rasori in Italy. Both believed that local diseases, such as pneumonia, were manifestations of a general affection and required no local or especial treatment. According to Brown, whose teaching was not adopted by the practical common sense of his own countrymen but attained supremacy in Germany, and through the writings of Benjamin Rush in America, all diseases depended either on depressed or on excited vital force, mainly the former, which required stimulation, while the latter demanded depression. Meat, alcohol, opium, camphor, musk, ammonia, were his main remedies. While most of Brown's diseases were asthenic, they were sthenic with Rasori. Tartar emetic and venesections were his principal resorts in pneumonia. His methods were adopted over a large part of Europe into the second half of the nineteenth century. The great Cavour was treated for his malaria with interminable blood-lettings until this saviour and hope of modern Italy was killed by his physicians. Rasori's teaching, which was also that of Peschier, was obeyed in the best medical schools of Europe. Under the orders of my revered teacher, Friedrich Nasse, at Bonn, in 1849-1851, and the supervision of his clinical assistant, Doctor, now Sir, Hermann Weber, of London, I treated in 1850 old Abraham, 78 years old, with large doses of tartar emetic and two venesections, one on the cephalic, one on the saphena, until he—survived.

After 1853, I did the same things in New York practice. Most of my pneumonia patients were bled, some on the saphena. To my credit, I may add that after a few years I became less sanguinary, though Payne of the University Medical College was still alive and teaching. Gradually both Brownianism and Rasoriism underwent slight modifications. Rasori relied mainly on antimony—its oxysulphuret was the subject of one of my first New York publications—emetics, narcotics, and digitalis, which he considered to be a sedative; Brown on nutrients and tonics, stimulants and analeptics. Amongst the latter, warmth or heat, and digitalis held a high rank.

By and by, universal vital force was no longer the underlying *general* support or danger of everything in physiology and nosology; its presence or absence was considered in its local influence on the heart, the nerves, and the blood. Weakness of the heart was treated with alcohol, digitalis, camphor, and cold bathing, and narcotics and nervines found their ready indications.

The therapeutical nihilism of Vienna was the result of the observation of unsuspected, and in part incredible, changes found at autopsies. A hepatized lung was not believed, when found at the autopsy to have ever been accessible to treatment or to improvement during life. Laennec's teaching at the same period was still anatomic, but anatomic lesions were found during life and not only after death, and not only they but the rapidity of their changes were appreciated. As these changes were known to take place spontaneously, so they were believed to be accessible to treatment, both internal and external. Abscesses and gangrene became amenable to interference, and resolvents, evacuants, and derivants reconquered their former standing. Inflammations and fever, however, became parts of the disease; unfortunately, in the eyes of too many even the disease itself, and antipyresis and antiphlogosis became the

gospels and the guides of medical consciences. In 1861 Ernst Brand introduced cold water treatment in typhoid fever. Neither he nor Currie was the first to propose it, but it so happened that, about the same time, the clinical thermometer conquered the field of diagnosis. The reduction of temperature came to be looked upon as a general duty. That was accomplished by chemical aids when water did not suffice or was not selected for that purpose.

In 1820 Pelletier and Carenton dissociated quinine. As it cured the fever in malaria, it was introduced into the realm of pneumonia. Later on, the coal tar preparations, one after the other, were credited with effects unknown and unknowable. Antipyrin was introduced by Knorr in 1884; acetanilid, the joy of the antikamnia mercenaries and the shame of the Commission of the United States Pharmacopœia, of what was called 1900 and was 1905, by Cahn and Hepp a few years later. And so on, *ad infinitum*. Old vegetable remedies did not lose their standing. Digitalis was often replaced by strophanthus, which was eulogized by Livingstone and Kirk in 1865, and strongly recommended by Th. R. Fraser. Veratrum and mercury came into their own again, and all the other important and unimportant therapeutic measures.

It is quite true, however, that the course of the pathologic process was not disturbed *much,* and was not shortened by treatment; that is the dogmatic dose always given us when we resort to physical or medicinal treatment. We are always told that all our medication, because it cannot improve—*so they say* —anatomical conditions, is useless. That is silly, for it should not be necessary to prove that a strong heart or a weak heart, an active splanchnic circulation, or a hepatic obstruction, act differently in the process of pulmonary circulation and of absorption. After all, it is on these that the life of a patient may depend in a pneumonia. Finally, I wonder why we should be prevented from keeping the man alive who owns the lung, and why we should take our hands off the lung because it cannot be directly influenced, at least they say so.

As late as the middle of the last century pneumonia was a disease resulting from some internal disposition, whose nature, according to Chomel and many others, was unknown. It originated from mucus in the blood, from bilious or thin blood, angina, pleurisy or suppressed menstrual or hæmorrhoidal bleeding. Now and then a local lesion, a pharyngeal wound, was mentioned as a cause of pneumonia. Centuries before, Paracelsus had said: "The body has been given us without venom. Whatever makes man sick is a venom that gets into his nature from outside." That was forgotten. Even the many ailments and accidents resulting from poisons were not utilized to correct the old theories; they lost their nosological dignity and were exiled to special books on toxicology. Semmelweiss, who learned from Paracelsus and his own observations, was ridiculed and driven crazy; even Lister was looked on askance for his innovations. Still the study of wound infections had its influence on internal medicine, and in imitation of the aseptic measures of surgical practice other clinicians looked for internal antisepsis to fight internal disease. As that proved useless, the hunt after more antiseptics was continued, the Greek dictionaries were exhausted in the search for new names; the doctors were dis-

appointed, but never hopeless, the manufacturers got rich, or tried to get rich, quick. Pneumonia, however, was not treated any better or more successfully.

Therapy has always been dependent on or connected with certain pathological doctrines. Its results are in due proportion to our ignorance, or knowledge, and to the difficulties to be surmounted. What little I could say of the trifling influence we appear to have in the different forms of pneumonia, seems to prove it. Better than mere empiricism is the proving of the effects of drugs, of which there are examples in Galen. Störck (1731-1803) made systematic researches in that line. He studied mainly narcotics, such as cicuta, colchicum, hyoscyamus, pulsatilla and stramonium. It has been said that Hahnemann was the first to embark in that sort of study. That is a mistake. The most important progress in pharmacology was made by experimentation at the hands of the men just named.

During the anatomic era, initiated by Bichat and elaborated by Laennec the master, and the Vienna school of Rokitansky and Skoda, it was possible to distinguish between the croupous, catarrhal, gelatinous, and cellular forms, with the differences in their clinical progress, but no indications could be derived from them nor was therapeutics benefited by them. The latter was still controlled either by a theoretical system which imprisoned the common sense of the practitioner, or by his discriminating intelligence which treated the individual patient according to the prevalence of either mild or dangerous looking symptoms.

Another era began for nosology and for therapeutic hopes when, some decades ago, a number of diseases were proven or supposed to be of microbic origin. If tuberculosis was the result of a bacillus, that bacillus had to be killed. Hot air blown into the lungs (Weigert) sulphid of hydrogen (Berget) into the rectum, were expected to do that, but did not. If pneumococcus caused pneumonia, the easiest way to cure the latter was to go for the coccus. That has been done without success. Evidently our views concerning its nature have changed, are improved and more scientific, but our art is not yet abreast of our knowledge of the indications. Bacilli and cocci take their own time; meanwhile, we have to turn away from them and again to the individual, who wants to get well, individually well, no matter how much you know of the essential nature or symptoms of the thousand fellows who have their own pneumonia, not his. Evidently your pneumonia is not that of your neighbor, for you are not he; he is a child, an adult, a senex, previously healthy or not, thin or fat, in good health or run down by care, work and starvation, or he has a pneumonia of a different etiology altogether.

The last few decades of nosology may be called an etiologic era. Under the influence of bacteriologic research the *causes* of pulmonary inflammations have increased, and the *indications* may be expected to change with them. The question is whether they can be fulfilled. The commonest form of pneumonia is that which depends on, or is complicated with, the diplococcus lanceolatus. This ubiquitous pneumococcus inhabits most of the normal mucous membranes. In the healthy it is found in the nose, mouth and pharynx. Its presence does not mean the existence of a pneumonia any more than the

presence of a diphtheria or a tuberculosis bacillus on the intact mucous membrane signifies diphtheria or tuberculosis. To start a pneumonia the pneumococcus demands a proximate cause, low barometer, dust, exposure to severe cold, sudden changes of temperature from warm to cold, trauma of the chest. The lungs are not the only organs in which, during the disease, the pneumococcus is found. It is met in, perhaps causes, pericarditis, endocarditis, nephritis, meningitis, pleuritis, conjunctivitis. Death may be caused by universal infection under symptoms of sepsis. Then it is found in the blood. It is *not* contagious. The etiologic indication is the finding and employment of an anti-pneumococcic serum. But it has not been proven that a soluble toxin is secreted in the infected animal body. A serum obtained from pneumococci which has been used to immunize horses, cows and rabbits is not antitoxic nor bactericidal but Metchnikoff believes it stimulates the increase of leucocytes, and A. E. Wright that opsonin is formed—that is the name given to a protective body—both investigators thinking that thereby the cocci are made subject to phagocytic destruction.

The practical constituents of any hitherto known anti-pneumococcus serum are very doubtful. Anders has collected data with very unfavorable results. In Curschmann's clinic four died out of twenty-four cases. Roemer has made what is called a polyvalent "serum." It is not probable, however, that any serum which is credited with multiple effects will have any. Nor have we any proof that an antitoxin valuable in one infection will prove so in another. A few years ago diphtheria antitoxin was recommended against cerebrospinal meningitis. I have injected from five to forty thousand units into the spinal canal in quite a number of cases. So have others. The result was a temporary notoriety of what is called an author, a discoverer.

Let me again urge, though I am aware that everybody knows it, that the ubiquity of the pneumococcus without illness, is well known at present. One of the first to discuss that was Durck in Deutsch. Archiv. f. Klin. Med., 1897. Lungs of children who did not die of pneumonia and lungs of domestic animals contained the diplococcus and other bacteria. Cultures of bacteria blown into the lungs of healthy animals caused no pneumonia; dust did; so did a mixture of cultures and dust. It is not the presence of pneumococci, but the fixation and their activity in generating toxins, which cause morbid tissue changes.

Acute lobular pneumonia does not run the more or less regular course of the lobar form. Muscles, including the heart, are not so easily or so early affected. Complications with pleuritis are not so common. Thus the danger may not be great in the beginning, but it lasts long, may fatigue and often exhausts the heart, or may terminate in suffocation mostly depending on catarrhal congestion and œdema.

Interstitial pneumonia, synonymous with peribronchitis, runs a protracted course, with temperatures mostly high and of long duration, with little or no cough, and incomplete recovery in most cases. Induration and retraction of the pulmonary tissue, ending in bronchiectasia, are common. They are the cases which after many years are frequently mistaken for tubercular infiltration

of the apices and upper lobes. No thickening of the adventitia of the smallest vessels is noticed, like that in the white hypatization of syphilis.

Complications with bronchitis are frequent. Then there is cough; also with pleuritis, also with lobular and lobar pneumonia. Then the consolidation or cicatrization of the tissues is a very early result; it appears very probable that the interstitial tissue is more than merely a mechanical support and a rounding off tissue. When the final contraction has taken place no treatment will prove effective. That is why iodides should be given quite early to meet the tendency to hardening. With the action of fibrolysin in subcutaneous injection, given to cause absorption of the organized new tissues, I have no experience.

Streptococcic pneumonia does not begin so suddenly, nor with a chill like pneumococcic pneumonia. It follows angina, diphtheria, scarlatina, or typhoid fever. The localization is disseminated, but after a while whole lobes may be affected by confluence. It migrates suddenly, the spleen is enlarged, it lasts days or weaks. No crisis. The cough is dry, evaporation scanty. Like other infectious diseases, it shows albuminuria. Diarrhœa is frequent, so is the combination with pericarditis, erysipelas and empyema. *It is contagious,* affects whole families, and is epidemic. The diagnosis from pulmonary consumption, when abscesses form and the process is protracted, is made by the presence of cocci to the exclusion of the tubercle bacillus. This form of pneumonia seems to have been known to Hippocrates, who gave a bad prognosis when a severe case commenced with nasal discharges; and for whom, when after a protracted and serious course the disease developed parotiditis and external abscesses, hope revived. Those who have faith in the efficiency of Marmoreck's or other anti-streptococcus serums in malignant affections, such as puerperal fever and scarlatina of bad type, should use it in these cases. I am sure that in a few of the worst cases of streptococcus infections the serum has served me well.

Both the infectious and the contagious character of pneumonia were observed by Sir Hermann Weber in 1869. In the *Jacobi Festschrift* of 1900 he describes cases of a "pneumonia fever as an infectious fever, the prominent symptom of which is a lobar pneumonia." After an incubation of from eleven to thirteen days, his cases would run an acute course of from four to six days, were located in the lower lobe, and were very contagious. One developed great weakness of the heart, one neuritis, and one a peculiar delirium, such as he has often seen in the rapid decline of febrile diseases.

Influenza pneumonia starts suddenly and develops slowly, is disseminated, is not always amenable to diagnosis by means of percussion and auscultation, and lasts long unless through congestion and œdema it kills by suffocation. Influenza pneumonia participates in the etiologic treatment of influenza, with all its failures.

The same may be said of pneumonias attending or caused by anthrax or by plague. They prove fatal in almost every case of the latter, in fifty or seventy-five per cent. of the former. So far, we have no etiologic indication for treatment.

Typhoid pneumonia is of two different types. It may be the first and sometimes the only recognized illness before typhoid fever is diagnosticated, or it is secondary to the changes which are early prominent in the bronchial mucous membrane. Crisis is very rare; even lysis is covered by the other typhoid symptoms. No etiologic indication for treatment of the bacillary infection. Not yet.

Tuberculous pneumonia, sudden or after a hæmorrhage, with or without a marked chill; may last one or more months; it terminates in lysis, consolidation, or cavities. No treatment to-day for this pneumonia based upon its etiology. But either a more efficacious tuberculin treatment, or a serum to be found, may attain a local influence on the diseased lung. The tubercular pneumonia resulting from hemorrhage has the lobular type. Forty-five years ago I removed a stone from a baby of nine months by laryngotomy. The baby died five days after of lobular pneumonia. At the autopsy it became quite clear that the lobules affected had collapsed and become the seats of inflammation behind small or large blood coagula which prevented the access of air to the air cells.

Malaria pneumonia requires close observation and examination to be diagnosticated. Begins with or without a severe chill, which I have seen renewed after a day or two. It may intermit, exhibits often a severe perspiration toward evening. At last there is here an etiological indication for the administration of quinine.

There is also a pneumonia which is lit up by a syphiloma of a lung or one that accompanies constitutional syphilis. Mercury and iodides are effective, but on the other hand Lewin speaks of them as occasional accessory causes of pneumonia.

Bacterium coli, bacterium proteus, also lepra, are connected with occasional pneumonias, either as causes or as combinations. No etiologic indications thus far.

When a pneumonia runs an unusually abnormal course the case is no longer simple. There are many cases of mixed infection. A mere pneumococcus infection never causes gangrene, or abscess, or protracted absorption. Complications with influenza or tuberculosis are frequent. Old tubercular deposits may soften and become absorbable by a new infection with pneumococcus, with measles, or pertussis, naturally with the impairment of direct therapeutic possibilities.

Indications for Treatment.—Extermination of the living or other causes. If that cannot be done, prevent the living or other causes from exterminating the man. The principal indication is to treat the man, not the disease.

Some rules are valid for all sick with pneumonia—rest of body and mind, no visitors, no noise, no excess of light, no high temperature of the room-air, not higher than 60 or 65, not necessarily so low as Northrup recommends it in all cases; liquid food, milk diluted with cereals, milk diluted with hydrochloric acid according to the plan of Dr. J. Rudisch (dil. hydr. acid 1; water 250; milk 500; heat to boiling point); plenty of water or lemonade, or hydrochloric acid in water. Relieve the abdominal circulation and the diaphragm

by a purgative, calomel, unless hydrochloric acid be taken; no heavy bedding; warm the feet; mustard paste to the chest; mustard footbaths in bed. In very fulminant cases with excessive congestion and cyanosis: a venesection.

In the cases with cyanosis, dilatation of the right heart, and threatening œdema on the second or third day, a venesection with one or a few big doses of digitalis, the equivalent each of ten or twelve grains, may save life. Those are the cases in which a doctor is wanted, while a mild case may be served well by a nurse.

High Temperature.—It is understood that a high temperature is not a uniform danger. In persons suffering from an old heart disease, in the prematurely born, in the anæmic of all ages it is so, or may be. Whether a warm bath, or a warm bath gradually cooled down, or a cold bath, or cold washing and sponging and friction, or a warm or a cold pack over chest and abdomen are indicated, or the local application of an ice-bag, depends on the individual case and the individual doctor. Forty years ago[1] I could speak of a fair experience with cold water in typhoid fever, pneumonia, scarlatina, variola, ophthalmia, diphtheria of the conjunctiva, heart diseases, local inflammation, phlegmon, synovitis and peritonitis. It has served me well since. No uniform rules fitting every case of pneumonia can be given. It takes brains to treat lungs. The length of these remarks obliges me to be very brief in the description of medicinal agents; indeed, I may be permitted to be axiomatic.

The most frequent form of pneumonia is the lobar. Even in children one-third of the cases belong to that class. As a rule, it runs its course in a certain number of days; it is self-limited. But from day to day the patient is under its debilitating influence. I appeal to the common sense and to the conscience of the individual practitioner for the decision of the question whether there should be in the individual case of his patient more or less food, more or less bathing, more or less medicinal stimulation. A fat person, a feeble person, a tuberculous person, an influenza patient, a child with lobular pneumonia, requires early stimulation. I have seen harm from neglecting it, never any from obeying that indication. As alcohol is in part eliminated through the lungs, I believe it is better not to give it during the first few days. Moderate doses of digitalis, strophanthus, spartein, caffein, or ammonium (liquor anisatus better than the carbonate) will be well tolerated, brace the heart, and may save the strength required for a speedy convalescence. Digitalin is no alkaloid. The preparations of most manufacturers are almost inert; they are unequal, and unreliable. Strychnine is given too much; indeed, it is abused. No myocarditis bears it well; in arteriosclerosis it may be tolerated in small doses; but you do not give medicines for an indifferent but for a full effect. The doses of strychnine must be large in the septic and the thoroughly anæmic.

Of the possible benefit derived from big doses of digitalis and of bloodletting, I have spoken. When expectoration is defective, permanent inhalations of crude turpentine have a good effect. Fill the room with the vapor,

[1] Medical Record, 1870.

but do not annoy your sick friend with pots and kettles and towels near the bedside. As stimulants, I believe in camphor, also in benzoic acid, about a gram or more daily. When the stomach refuses to aid you, give your medicines subcutaneously. Camphor in four parts of sweet almond oil, sodio-caffein salicylate or benzoate, one part in two parts of distilled water, a dose of 10 or 15 minims every two or four hours, or, in pulmonary œdema, every 15 or 20 minutes, until you are satisfied.

Dry pleurisy with its excessive pain, demands morphine, never internally, but subcutaneously. Internally it will have no effect such as you want; subcutaneously, that means locally over the seat of the pain, it will never fail you. It will not cure it, but will relieve, and aid in curing your patient who is anxiously searching your eye for immediate relief and final cure. Incessant cough and sleeplessness caused by pain, must be relieved by an opiate. You may kill your patient by not relieving him. The fanatic interdiction of opium in the cases of infants is copied from one text-book into the next by those who treat people at their desks, and not at the bedside.

PROGRESS AND CHANGES IN THE TREATMENT OF TUBERCULOSIS DURING THE PAST TWENTY YEARS.*

By EDWARD R. BALDWIN, M.D.,
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A REQUEST from our president is the immediate occasion for this review, which he, as I am sure is true of all of the members present, would have preferred from Dr. Trudeau's own pen, since it was Dr. Quimby's hope to have an expression directly from him. As this could not fairly be added to the necessary burdens placed upon Dr. Trudeau, I shall essay to represent faithfully in what follows the views which he holds of the subject announced, trusting that it will fulfil in a degree the desire to hear from Dr. Trudeau's experience. As a matter of fact, it has been my own privilege to observe the changes during nineteen years of the past two decades, many of which have been full of unprecedented and dramatic incidents connected with the treatment of tuberculosis. There have been many changes and some progress in those years.

During the later years among the 80's the trend of treatment was toward germicides aimed against the bacillus. Creosote was perhaps the most widely used agent with supposed disinfectant powers. Sulphide of hydrogen per rectum, inhalations of hydrofluoric acid, oxygen and antiseptic oils were in vogue. Belief in specifics, discovered or to be discovered, was natural considering that the enemy had been located and the bacillus could be studied with reference to the influence of antiseptics. Dr. Trudeau's earliest experiments were concerned with this idea, but he and others very soon found that

* Read before the meeting of the American Climatological Association, June 5, 1909.

the bacillus in a test tube could not be safely compared with those imbedded in cheesy tubercles or masses of purulent sputum.

This fatuous belief in germicides has never died out, and who knows but that some clever Japanese may even yet discover a specific as deadly to tubercle bacillus as quinine to the *plasmodium malariæ*, and equally harmless to man? I fain would believe that he would be received with plaudits on the Pacific Coast!

As we all know, belief in the specific virtues of climate, and especially of altitude and dryness, was well-nigh a universal conviction. The treatment of tuberculosis at home, or even in the few sanatoria where special climatic advantages were wanting, was viewed with disfavor, indifference, and always required an apologetic attitude on the part of the physician as well as resignation by the patient to his incurability. The pessimism of that time was more in relation to the possibility of a cure in unfavorable climates than in disbelief in the virtue of medication, although the secondary importance of medicaments was generally recognized and taught by the leading men.

Meanwhile, animal experimentation was giving encouragement to Koch for his reluctant announcement of tuberculin in 1890. Nothing seemed more appropriate than that such a wizard should produce a *bona fide* cure, and only those of us who experienced the thrill of injecting the precious fluid can appreciate the emotions excited at that time. I need not dwell on the depression, unwarranted resentment and carping criticism which followed. Only a few brave and confessedly daring men persisted in experiments with tuberculin. Dr. Trudeau was one of the few, but he was inspired by the rather surprising results on animals which he obtained from 1891 to 1893 with various modifications of tuberculin. These were supposed to have removed its sting while retaining its curative properties. Reactions were feared so that this treatment seemed only justified so long as no harmful reactions could be observed.

Nevertheless, the disappointment was very great on the part of the mass of physicians, and less medication or none was the popular impulse, at least so far as trying new remedies emanating from laboratory investigations was concerned. Such research was in decided disfavor as a basis for human therapeutics among the men on the street, and naturally so. Dependence upon the time-honored tonics, strychnine, arsenic, iron and hypophosphites was the routine to fall back on, or at most a trial of the latest derivative of creosote. Many physicians in their indifference abandoned patients to the quacks with their perennially new inhalation specifics or bacillus killers of every description. It was a barren year that has not produced at least two sensational "cures" during the past twenty years, and the public is not to be blamed for listening to the blatant voice of the charlatan with equal readiness to the quieter tone of the sincere worker in the field of science, who has been exploited by newspapers or had misled them by over-enthusiasm about some new lead he was following; forgetful perhaps that the cure of tuberculosis involves many things undreamed of in his laboratory.

In the midst of this mixture of skepticism and popular credulity in 1891 to 1893, there came along some undoubtedly meritorious agents, such as cinnamic acid and nuclein, whose injection exerted a semi-specific action by exciting leucocytosis. The chloride of gold with sodium and the iodide of manganese injections, as practiced by Drs. Shurly, Gibbes, and J. Blake White, were given serious attention as rational alteratives for a time. The discovery of antitoxins was, however, the signal for renewed hope along the line of a true specific, and while the enthusiasm was quieter we were exulting in expectations. Much time was required to find out what the difficulties really were in the way of a tuberculosis antitoxin, and it might be added, such research is still going on and is not altogether hopeless.

Meanwhile the feeling had been growing that sooner or later all infectious diseases must be conquered. Sanitation has been advancing, more interest was developing in the hygienic and dietetic treatment of tuberculosis in and outside of institutions abroad, together with the feeling that possibly something radical could be accomplished without climatic factors hitherto thought necessary.

The modest attempts of Drs. Trudeau and Bowditch in their pioneer sanatoria, which were inaugurated with misgiving and against heavy odds, began to show results. State and private sanatoria have since successfully justified their location in situations relatively inferior as to climate and weather conditions, until the climatic nihilist has joined hands with the medication nihilist in decrying the real value of climatic change.

Having discovered the elements of paramount importance in fresh air, food and rest, certain sanguine but not over-wise individuals have gone to extremes in their enthusiasm, so that to-day we find the home treatment vaunted beyond reason. No doubt the great good that has come in this movement more than counter-balances the harm from the exaggeration, and great improvement has followed in a more rational treatment of symptoms. Medication for cough, sweats and fever has rightly been replaced by external measures, or infrequent use of cough sedatives and antipyretics. The introduction of heroin, of local anæsthetics useful in the throat, such as orthoform and anæsthesin, and of mentholic preparations in sprays and inhalations in place of nauseant expectorants is certainly a sign of progress.

Hæmoptysis has passed through many phases of experimentation with vaso-constrictors and vaso-dilators, and with very questionable advantage. The use of opiates in bleeding to check cough and calm excitement still holds the chief place, but they are certainly less often needed than was formerly thought.

A decided gain has been achieved in the general management of patients in the matter of exercise, and by a greater attention to rest during febrile conditions and avoidance of harmful excitement.

Artificial collapse of the lung by nitrogen injections to secure immobility had a rational basis along this line under the name of the Murphy treatment. Its use was short-lived here, but it still receives some attention abroad. Mechanotherapy has had faithful adherents in the use of the pneu-

matic cabinet for influencing the circulation through the lungs by pressure differentiation, a most rational procedure for properly selected cases. A tribute is due to our president for his persistent advocacy of this treatment, which embodies principles amply in accord with the best proven rationale to-day for successful results; namely, intermittent hyperæmia. Probably it would have received more attention but for the trouble and study required to apply it intelligently and long enough to secure results.

The simple truth is that styles in the treatment of tuberculosis have changed, like hats, with the seasons, and for fear of being regarded antiquated, undoubtedly useful measures are dropped by the majority of us, after a most superficial trial. One reason for this has been the necessity placed upon the men most engaged in phthisiotherapy to test every claim made by some one who had seen a vision of a cure in whatever he brought forth from years of mighty struggle. These have been legion. On the other hand, the gradual return of interest in tuberculin therapy illustrates the fact that a few demonstrated truths from serious studies on immunity have taken the attention of our profession again. There is at least a more thorough study being made of tuberculin now than of any other previous treatment known to me, unless it be creosote. Yet there is now danger from ignorant and reckless exploiters, who will throw discredit upon the conservative men who are proceeding cautiously with the hope that time will produce still better indications to govern immunizing methods of treatment.

That there is some value in these methods is now recognized pretty widely by those who have carried out tuberculin therapy according to a system of which Dr. Trudeau has been the exponent as much as anyone in this country. This has for its principle a heightened resistance or tolerance for tuberculin itself. Until some better explanation can be given for the good results, this is to be taken for the rationale in specific therapy rather than direct immunity against the bacillus.

A word should be said of the progress made in the treatment of surgical tuberculosis by the Bier's method, and the gradual decrease of operative interference through this means, as well as by early aspiration of cold abscesses and effusions. Admitting that exaggeration is having its usual sway in this as in all previous treatments, there is yet much to be grateful for in the good results already obtained. The application of this principle to pulmonary tuberculosis by means of the Kuhn mask is not, I think, destined to become popular any more than the same treatment applied by posture with the head below the trunk. The theory is good, but the application too unpleasant.

I have referred to some of the things which seemed to make for progress in our art as applied to the treatment of tuberculosis. It is impossible to mention all the good things that have been gained and also lost during twenty years.

The gains to an appreciable degree have been negative, by the abandonment of much polypharmacy and the education of the laity against it, not forgetting the discomforture of many quacks by our friend Samuel Hopkins

Adams, and the journals which have espoused decent advertising, notably, *Collier's* and the *Ladies' Home Journal.*

Much yet remains to be done along this line inside the profession, and I believe is being done by the Council of Pharmacy of the American Medical Association.

In the history of all progress some good things are lost, yet comparatively little of value can be pointed out in the list of abandoned medicaments for tuberculosis.

Creosote in some form appears to me to be one which has lost some prestige unjustly, and it still has many supporters in the guaiacol derivatives. Probably iodine, arsenic and phosphorus are still held in repute, but in the present neglect of any but specific medication along the lines of vaccines, one hears but little of their use. Most noticeable in some quarters is the preachment against the usefulness of climatic treatment *per se.* I think this is a loss, but destined only to be a temporary one. Disappointment and reaction must follow, and those of us who realize what deep-seated constitutional weaknesses must be combatted in many cases of tuberculosis, know that only by radical and permanent change of climate and environment can results be accomplished.

The truth of these matters becomes redistilled and purified by experience and opposition, leaving behind, clearly established, what is most valuable for retention.

THE STANDARDIZATION OF MATERIA MEDICA PRODUCTS.

By F. E. STEWART, Ph.G., M.D.

(Concluded from June number.)

At a meeting of physicians and pharmacists held at the office of Dr. Henry Gibbons, Jr., to organize a San Francisco branch of the bureau, Dr. Philip Mills Jones proposed that we make the bureau more effective by reorganizing under the joint auspices of the A. M. A. and A. Ph. A. This plan was approved, and a joint committee appointed, which further elaborated the plan, and reported favorably. Conflicting commercial interests defeated this commendable attempt. Then the House of Delegates took part of the plan as a basis for its Council on Pharmacy and Chemistry.

The plan of the Council is intended to act as a clearing house for the advertising department of the *Journal of the American Medical Association.* It leaves the proprietary claims of the manufacturing houses precisely as it found them. The plan of the Bureau is opposed to materia medica monopoly no matter how obtained, with the exception of the limited monopoly acquired by process patents which publish exact knowledge of the patented processes in such clear and comprehensive language as to permit the duplication of the products by those skilled in the art. The plan also admits the use of brand names to distinguish between the various brands of products on the market, each product to

be known under a technical name by which it may be freely discussed in medical societies and journals, and find a place in scientific literature.

The plan of the Council includes a therapeutic committee, having as its function the determining of whether claims made in the advertisements of so-called proprietary medicines are sufficiently worthy of credence to have the product admitted to the "New and Non-Official Remedies." The plan of the Bureau recognizes that therapeutic verdicts can only be obtained by the co-operative investigation of many competent observers, working for long periods of time under varying conditions of environment, and upon patients of different nationalities. For this purpose a Working Bulletin System is included for collecting the results of original research and furnishing the same to the profession in the form of abstracts giving credit to the original reports from which the information is derived.

No intention exists on my part to disparage the excellent work of the Council. It is accomplishing its purpose admirably. The object of the Council is not to place the practice of the pharmacologic arts on a professional basis. It recognizes the practice of pharmacy merely as a commercial business. The plan of the Bureau, on the contrary, is intended to reform pharmaceutical practice and place it on a professional basis as part of the practice of medicine, and to aid in conducting the practice in harmony with scientific and professional requirements.

The advocacy of the bureau plan has not only resulted in the founding of the Council which has proved of so much value to all concerned except dishonest advertisers, but has done much to aid the cause of materia medica standardization in other ways.

The scientific department idea has been adopted by several of the large manufacturing houses. As a result of their work, galenical standardization has been added to the United States Pharmacopœia. This was accomplished at the National Convention for Revising the United States Pharmacopœia of 1890. The plan worked so well that it was extended by the convention of 1900. Physiological standardization may be advocated for the next revision. There is much to recommend it provided care is exercised by the committee of revision to keep on the conservative side. As the next convention meets in 1910, the time is appropriate for discussing this question.

But there still remains much work to be done in the way of establishing materia medica standards and enforcing the same by various agencies having this function in charge.

The ergots on the market are in a very unsatisfactory condition, many of them being inert. Yet ergot is purchased and sold by wholesale and retail druggists, manufactured into fluidextract by manufacturing houses and retail druggists, and placed on the market for physicians prescribing without testing the products to ascertain whether they possess any activity or not. One example will illustrate the condition of affairs. A certain manufacturing house making a specialty of testing ergot preparations by physiological methods and chemical assay, purchased their supply of this drug and stored it under what were supposed to be proper precautions. Within two months it was made into fluid-

extract, and then tested chemically and physiologically, when it was ascertained to be virtually inert. Sixteen hundred pounds of fluidextract were thus rendered useless.

Manufacturers and retailers preparing fluidextract of ergot without testing the activity of the finished product on animals, are not in position to guarantee their products, or even to know whether they are of any activity whatever. The methods of testing ergot physiologically by injecting into roosters and observing the effect upon the comb and wattles is qualitative, not quantitative. Checked by the chemical assay for total alkaloids, the combined method is of more value.

That the presence of alkaloids is considered to be indicative of therapeutic activity is shown by the fact that the Swiss Pharmacopœia has adopted a test for fluidextract of ergot in which the presence of a minimum quantity of the alkaloids in the fluidextract is used as a method of standardization.

As pointed out by Edmunds and Hale, in their valuable paper on "The Physiological Standardization of Digitalis," "at the present time it is impossible to secure a standardized preparation of the drug by any known chemical means on account of the fact that the activity of the drug depends upon no single active principle, but upon several whose chemistry is not completely known and for the isolation of which there does not, at the present time, exist any satisfactory chemical method."

Several workers have tried to find a relationship between the digitoxin content and the activity of the preparations as determined by biological methods. This combined method of standardization, while the best now in vogue, is not entirely satisfactory.

As stated by the authorities just quoted, "Reed[1] and Vanderkleed, using guinea pigs, claimed to have found a certain parallelism, but a study of their results shows that the parallelism is by no means without exceptions." Their figures, tabulated in the paper by Edmunds and Hale referred to, show a closer relationship than has been obtained by previous workers.

Reed and Vanderkleed's method is used by one of the manufacturing houses, and has proved comparatively satisfactory.

That there is necessity for standardizing digitalis preparations, is apparent when it is considered that the investigators who have reported on this subject, show such a wide variation in the preparations of digitalis on the market. Reed and Vanderkleed demonstrated that the various brands of tincture of digitalis marketed by the large manufacturing houses vary about 300 per cent.

"Bennefeld, in 1881, showed that for rabbits the lethal doses of eight digitalis tinctures varied about fourfold.

"Buhrer (1900) demonstrated on frogs that some of the fluidextracts of digitalis were four times as strong as others.

"In 1902 Fränkel showed that six infusions of digitalis varied from 100 to 275 per cent., and six tinctures from 100 to 400 per cent.

"Edmunds, in 1907, showed that seventeen tinctures of digitalis, purchased in the open market, varied in strength as 1 to 4.

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[1] Reed and Vanderkleed. Am. J. Pharm., Phila., 1908, lxxx, 110.

"Fränkel,[2] in 1902, showed that seven strophanthus tinctures varied as high as 6600 per cent.

"It has been suggested that on account of the variation in the strengths of the digitalis series, the active principles should be substituted for them in general practice, but Haynes,[3] in 1906, showed that in their isolation much of their potency is lost and that they require standardization even more than the galenical preparations."

An important factor in materia medica standardization is the determination of the botanic identity of the species of medicinal plants employed in the manufacture of pharmaceutical preparations. Dr. H. H. Rusby, of New York, President of the American Pharmaceutical Association, and Dean of the New York College of Pharmacy, Columbia University, in his lecture delivered before the Philadelphia Branch of the American Pharmaceutical Association, April 20, 1909, stated that a large part of the work represented by the United States Pharmacopœia is valueless, owing to the failure on the part of investigators to identify the species of plants used in their researches.

For example, it has been ascertained that in a certain species of apocynum there resides a glucoside equal, if not superior, to digitalin as a remedy in the treatment of heart affections. Yet, because the discoverer of this principle did not describe the species of apocynum in which this glucoside resides, no one knows to-day just where to look for it. After citing a number of other instances to prove the enormous value of botanic standardization, he stated it probable that the next revision of the Pharmacopœia would include methods for the botanical standardization of a number of the medicinal plants.

Owing to the development of microscopic methods, botanic standardization can be readily applied to powders, and adulteration may often be detected more readily in powders than in the drugs themselves. By microscopic means species can often be determined on account of peculiarities of cell structure and the presence or absence of crystals. At one time the presence of acicular crystals of calcium oxalate in certain amounts, was regarded as evidence of purity in belladonna root. Now it is known that the crystals came from poke root used as an adulterant, and the amount of crystals present is a measure of adulteration, not of purity.

What do you suppose would be the therapeutic effects from a mixture like the following? Dr. Rusby related an instance where a lot of stramonium was submitted to him, which chemical assay demonstrated to contain 0.25 per cent. mydriatic alkaloids as required by the Pharmacopœia, but ocular inspection showed the presence of other than stramonium leaves. Botanic standardization of the powdered leaves then demonstrated that the stramonium had been fortified by using belladonna leaves; that the addition had raised the alkaloidal content of the mixture too high; then, to correct this, a poor lot of hyoscyamus leaves was added, which brought the alkaloidal strength to the standard of the Pharmacopœia. It is not necessary to say that the port of New York rejected the consignment.

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[2] Fränkel. Therap. d. Gegenw., Berlin u. Wien., 1902, xlii, 106.

[3] Haynes. Bio-Chem. Jour., 1906, i, 63.

I think that I have furnished you with sufficient evidence to prove that the subject of materia medica standardization includes a much wider field than is usually supposed to belong to it; that it embraces the fixing of standards for determining the identity, source or genesis, physical and chemical properties, physiological and therapeutic action, and the methods of preparing, dispensing, and applying materia medica products in the practice of medicine and pharmacy; that it includes the application of these standards in the practice of the pharmacologic arts, namely, the arts of pharmacognosy, pharmacy, pharmacodynamics, and therapydynamics; that it includes the study of methods of introducing new materia medica products to science and brands of the same to commerce; that it includes the protection of capital invested in materia medica commerce by patents either on products or processes, or both; that it includes the protection of the public from fraudulent substitution by the use of trademarks and brand names whereby the brands of manufacturers can be distinguished from each other and specified by physicians and pharmacists wishing to obtain the advantages of special skill in the pharmacologic arts; that it also includes a study of the advertising question in its relations with medical and pharmaceutical journals. For all of these subjects relate to the materia medica and have standards of their own, ethically, professionally, and commercially, and each subject dovetails into the other to such an extent that it is impossible to carry out any systematic plan of materia medica standardization without considering the subject from the broadest possible point of view.

The final question which we are to consider briefly is embraced by the question, Who is to do the work of standardization?

Theoretically we have a profession of pharmacy consisting of retail druggists, graduates of colleges of pharmacy, having as its function the selection, preparation, preservation, compounding and dispensing of medicines to meet the demands of the medical profession for materia medica products, and also the legitimate demands of the public for domestic medicines. Theoretically the practice of pharmacy includes the selecting of all the crude material and manufacturing all the preparations of the same used in treating the sick, including what are known as chemicals, galenicals, and extemporaneous pharmaceutical preparations. Practically no such profession exists. For a long time retail druggists have not manufactured their chemicals, either inorganic or organic. Little by little the manufacture of galenicals has drifted out of their hands and into the laboratories of the large manufacturing houses. Extemporaneous pharmacy has dwindled down to small proportions. Ready-made preparations, such as pills, tablets, capsules, etc., have taken the place of the extemporaneous prescriptions. The retail druggist has thus become, to a great extent, a mere hander down of ready-made goods. This is due in part to a want of proper education of the medical profession in materia medica, therapeutics, and prescription writing. In part it is due to the development of standardization as applied to medicinal drugs, chemicals, and preparations of the same. While the future will doubtless show a decline in the use of ready-made prescriptions on account of the tendency of the profession to prescribe with greater accuracy, the time will never come when the ideal of a pharmaceutical profession of retail

druggists will be realized. The subject of standardization will continue to develop, and as it does so the demand for skilled botanists, chemists, and physiologists will increase. To become really skilled in any one of these departments as a branch of pharmacology requires a preliminary university training and a post-graduate course in medicine, botany, and pharmaceutical chemistry, with special training in the particular branch specialized.

Colleges of pharmacy are not turning out his class of men.

The National Syllabus Committee, representing the colleges and boards of pharmacy, has issued a pamphlet containing their proposed course of study designed to fit retail druggists to practice the pharmacologic arts in a professional manner. The plan is ideal, but it is doubtful whether it can ever be realized to any great extent so far as the retail druggists are concerned, for reasons just stated, and because the manufacturing and standardization of materia medica products on a large scale can be effected with much greater economy than it is possible to secure when the practice is conducted on a small scale.

The large manufacturing houses have come to stay, and it therefore becomes important for the profession to investigate their methods of doing business. Is the practice of the pharmacologic arts to be carried on as a side line by great commercial houses engaged in the manufacture and sale of nostrums, under their own labels, under the labels of retail druggists, or under the labels of the large patent medicine concerns for which the said commercial houses are doing the work? Or is the practice to be conducted by graduates of medicine and pharmacy co-operatively associated with capitalists and conforming with scientific and professional requirements? These are important questions for the medical profession to decide. The Supreme Court, in its decision in the Syrup of Figs case, already quoted, has pointed out the way.

Who is to do the work of fixing the standards? Theoretically the medical and pharmaceutical profession assemble in Congress every ten years to appoint a committee for revising the United States Pharmacopœia, consisting of a list of medicinal drugs, chemicals, and pharmaceutical preparations used by the medical profession for treating the sick, with formulæ for their preparation, and standards for determining their identity, character, purity, and strength. Invitation to this Congress, known as a Pharmacopœial Convention, has recently been issued by Dr. Murray Galt Motter, Secretary of the Convention, which will assemble May 10th next year, at Washington, D. C. The following extracts from the constitution show the qualifications for membership:—

> "The members, in addition to the incorporators and their associates, shall be delegates elected by the following organizations: Incorporated Medical Colleges, and Medical Schools connected with Incorporated Colleges and Universities; Incorporated Colleges of Pharmacy, and Pharmaceutical Schools connected with Incorporated Universities; Incorporated State Medical Associations; Incorporated State Pharmaceutical Associations; the American Medical Association, the American Pharmaceutical Association, and the American Chemical Society; provided that no such organization shall be entitled to representation unless it shall have been incorporated within and shall have been in continuous operation in the United States for at least five years before the time fixed for the decennial meeting of this corporation.

"Delegates appointed by the Surgeon-General of the United States Army, the Surgeon-General of the United States Navy, and the Surgeon-General of the United States Marine Hospital Service, and by the organizations not hereinbefore named, which were admitted to representation in the Convention of 1900, shall also be members of the corporation. Each body and each branch of the United States Government above mentioned shall be entitled to send three delegates to the meetings of this corporation."

For the first thirty years of its history the National Convention for revising the Pharmacopœia was a medical body. In 1850 colleges of pharmacy were first permitted representation. Decade by decade the pharmaceutical representation has increased, until in the Convention of 1900 it was slightly in the ascendancy over medical representation. The Committee on Revision, appointed by the last Convention, consisted of twenty-six members, nineteen of whom represented pharmaceutical colleges, and only two of whom were practicing physicians. The pharmacopœia resulting from the labors of this committee is acknowledged to be superior to almost any other pharmacopœia in the world. Therefore no serious fault is to be found with the work of the committee. But the conditions existing demonstrate a great lack of interest in the pharmacopœia on the part of the medical profession. The question is, How can the interest of the medical profession in the National Standard be stimulated? It is my belief that the way to stimulate the interest of physicians in the pharmacopœia is through the medium of standardization of materia medica products, and the sending out of literature on this subject by the Committee for Revising the United States Pharmacopœia, also by the various departments at Washington interested in the identification and standardization of drugs, by the Council on Pharmacy and Chemistry, and by the manufacturing houses engaged in the pharmacal and chemical industries.

I believe that the medical and pharmaceutical journals should take up this subject for discussion. It is evident that it would be unsafe to throw open the educational channels of the medical and pharmaceutical professions to a discussion of advertised materia medica products without the establishment of a strong Central Committee, Board of Control, Bureau of Materia Medica, or Pharmacologic Society—call it what you please—representative in character, having as its function the co-operative classification and standardization of the newer materia medica, the censorship of advertising, the promotion of professional and commercial interest, and the protection of the public from dishonest commercial exploitation.

PNEUMONIA: ITS DANGER POINT AND HOW TO AVOID IT ACCORDING TO DR. SAJOUS.*

By J. MADISON TAYLOR, A.B., M.D.,

Pneumonia is described by many text-books and many authorities as a self-limited disease. Some of the most positive teachers declare that an expectant treatment, fortified by hygienic precautions, is not only sufficient

* Summary of an article read before the American Climatological Association, June 4, 1909.

but safest; that medication is dubious at best. The evidence from all forms of treatment in the past forty years offers little encouragement because the mortality is to-day about three and one-half times greater than it was then; standing on a par with tuberculosis. It is steadily on the ascendant, whereas the latter is growing less. It is plain that neither the empirical drugging of half a century ago nor the drug nihilism of later years, nor again the open-air housetop treatments of the present has served to check the steady holocaust from one infectious disease.

To gain the mastery over this appalling slaughter it would seem plain that we must approach the problem by subjecting the enormous mass of valuable evidence to a thorough analysis, because it is reasonable to assume that we have learned something from which, upon revision and selection, the truth shall appear. Moreover it is necessary to add to what has been learned, some essential facts concerning the resources of the organism and how these can be so enhanced as to lift the infected individual over the danger points. The object of this brief contribution is to give a succinct summary of the interpretations of Sajous, which have shed much light on many obscure places, and have been instrumental in reducing the mortality of the disease by those physicians who have carefully studied his views and the remedial procedures he pointed out in the second volume of his work on the "Internal Secretions."

Sajous teaches that the main period of danger coincides with the stage of engorgement. The affected area becomes, he states in his work on the "Internal Secretions," intensely congested and the capillaries between and towards the air-cells, are greatly distended. They evidently pour their contents into these air-cells, for they and the terminal bronchioles are more or less filled with red and white corpuscles, epithelial cells, etc., and blood-plasma. During this period, we know, there is greatly increased frequency of the respirations, which may vary from 40 to 60 per minute in adults, and 60 to 100 or more in children. There is marked oppression, a "grunt" being more or less audible at each expiration. In plethoric individuals, the dyspnœa is especially intense. Now, how explain this phenomenon? This is where text-books fail, and where Sajous's researches supply life-saving information.

He has pointed out, and this is made particularly clear in his recently published paper on the "Auto-protective Mechanism"[1] that the adrenal, thyroid and pancreatic secretions jointly supply to the blood all its immunizing constituents. Of all these, however, that produced in greatest amount is the adrenal secretion (the amboceptor in the immunizing triad), which, as every one knows is the most powerful blood-pressure raising agent known. The toxin having induced a violent auto-protective reaction, the adrenal product not only causes a general rise of blood-pressure, but this is especially marked in the diseased portion of the lung, where the immunizing process is carried on with the greatest vigor. Hence the intense respiratory symptoms, the dangerous interference with the heart's action which involves

[1] New York Medical Journal, February 20-27, 1909.

the familiar tendency to cardiac failure—a most dangerous phase of the disease. *The patient's circulation is practically blocked in the lungs.*

It is to the mastery of this stage that Sajous attaches the greatest importance. Proper measures, at this time he urges, and his opinion is now justified by the experience of many practitioners, prevent a fatal issue. The measures he advocates do not involve the need of special technical knowledge; they are of the simplest possible kind and within the reach of any physician. They are (1) the free use of saline solution and (2) the use of creosote carbonate, *both begun at once, i.e.*, when the case is first seen.

As to the saline solution; his purpose is to replace the sodium chloride consumed with abnormal rapidity in pneumonia, and to compensate for the one-half ounce of this salt eliminated daily with the excretions (urine, sweat, tears, etc.) which is replaced only in part through the reduced diet. An adult patient who drinks not less than one quart of saline solution (approximately two teaspoonfuls of common salt to the quart of water, or milk, or water and milk), not only meets these drawbacks but it does more: By preserving the normal osmotic properties of the blood and preventing undue viscidity, it facilitates greatly its circulation in the tissues, including the diseased lungs. Their engorgement is not only kept thereby within safe bounds, but the detritus (fibrin, broken down red corpuscles, leucocytes, etc.) is promptly transferred to the general blood-stream and converted therein into end-products which are readily and rapidly eliminated by the kidneys.

The *creosote carbonate* fills another all-important purpose: it enhances the bacteriolytic and antitoxic power of the blood and enables this blood to reach the nidus of infection with increased freedom—thus aiding the saline solution. It does this by depressing the sympathetic (which Sajous traced to the pituitary body), and thus causes dilation of all arterioles including those of the diseased area. Moreover, the dilation of these small arteries being general, the blood-pressure is lowered, thus antagonizing the general rise of blood-pressure which is in part responsible for the pulmonary engorgement which it is our purpose to antagonize. Full doses 10 to 15 grains (0.6 to 1.0 Gm.) of creosote carbonate (best administered, though an oil, in capsules) at short intervals, *i.e.*, every two or three hours from the start, give the best results.

In strong plethoric individuals, the arterial tension and therefore the pulmonary congestion are such that additional measures are necessary to relieve the lungs and the heart. Sajous recommends veratrum viride or the bromides in full doses. Both of these drugs depress the vasomotor center and by thus causing the great splanchnic area to contain more blood it depletes the peripheral organs including the lungs.

This treatment has saved many valuable lives, and its benefits will be enormously extended when the senseless and murderous "expectant" plan will have been dropped by the wayside, and logical reasoning on the use of remedies will have replaced empiricism.

Cyclopædia of Current Literature

ADIPOSIS DOLOROSA.

Two cases that came to autopsy are reported by the writer. The disease develops gradually in most cases; occasionally rapidly but never abruptly. The cardinal symptoms are (1) fatty deposit; (2) pain and tenderness on manipulation of the adipose deposits; (3) general asthenia; (4) psychic phenomena. The writer differs with those who disregard alcoholism and syphilis as possible etiologic factors. The thyroid has been found to be affected in 7 of the 8 recorded cases. The hypophysis also was distinctly affected in 5 cases, and had been unexamined microscopically in at least 2 of the remaining 3 cases. It has been found that in animals when the thyroid is extirpated the pituitary body enlarges. The writer thinks that sufficient attention has not been given to the hypophysis, and suggests that etiologically it is almost as important as the thyroid. He suggests that the symptom group may result from a primary disease of either of those structures, the other being involved secondarily, though their close interrelations have been noted in other structures, particularly the genital organs. Recovery from adiposis dolorosa is rare, but the disease itself does not directly cause death. Complete intermissions are but remissions and are common.

The treatment leaves much to be desired. The salicylates advantageously combined with bromid salts are useful to relieve pain. Aspirin is of value. Extract of the thyroid gland is the most valuable remedy at our command. The pituitary body at present has little value as the results of its use are not known. Potassium iodid is called for with a syphilitic history. The heart may require attention. G. E. Price (American Journal Medical Sciences, May, 1909).

AMYL NITRITE, ACTION OF, ON THE ARTERIES.

In health amyl nitrite relaxes the arteries with a very slight drop in the diastolic blood-pressure. The blood-pressure returns at once to normal on removal of the amyl nitrite, thanks to the elasticity of the arteries. In arteriosclerosis the diastolic blood-pressure drops considerably although the heart action may be stronger. On removal of the amyl nitrite conditions return only very slowly to normal, the blood-pressure not returning to its former height until after half an hour. The phenomena observed indicate that the higher tension in arteriosclerosis is the consequence of the permanent organic contraction and immovability of the intestinal arterial system. The true essence, therefore, of arteriosclerosis is the lack of elasticity in the walls of the intestinal arteries. The writer has the patients inhale ten drops of amyl nitrite at once, and has never witnessed any threatening symptoms from it in several hundred experiments on healthy subjects. He has also found it effectual in treatment of tuberculous hæmoptysis. C. v. Rzentkowski (Zietschrift für klinische Medizin Bd. lxviii, Nu, 1-2; Journal American Medical Association, June 12, 1909).

ANÆMIA, PERNICIOUS.

Slight evening pyrexia is seldom absent in pernicious anæmia cases that are decidedly ill. Pigmentation within the mouth, of precisely similar character to that seen in Addison's disease, may occur in pernicious anæmia cases treated with arsenic. The spleen is to be felt in about one-third of the cases, and is really enlarged. The nerve symptoms are not at all uncommon in pernicious anæmia. The color index of the blood, though typically higher than when an advanced stage of the disease has been reached, is not always or continually high especially during a period of improvement in the patient's condition, when it may be actually low. Pernicious anæmia is very possibly only a late and almost incurable stage of a disease that it is to be hoped will some day be recognizable early enough to be cured. H. French (Clinical Journal, May 12, 1909).

ANGINA PECTORIS, PAINLESS AND PAINFUL.

Painless angina is much more common than one would suppose it to be from the infrequency with which it is mentioned; but, in all probability, the disease is not always recognized, and the patient's sufferings are attributed to hysteria or some reflex disturbance. When the symptoms are accompanied by a dilated right heart or distinctly atheromatous changes the diagnosis is easy, but when physical signs are absent it is difficult to arrive at an absolute opinion. If, when free from the paroxysms, the patient continually suffers from a feeling of weight or distress over the præcordia, and has a tendency to take occasional deep inspirations, there is a strong probability that the right ventricle is affected; and this amounts to certainty if the symptoms are invariably produced or aggravated by exertion. This form of angina is entirely different from the painful variety, and in many instances demands a diametrically opposite treatment.

The cause of angina pectoris is still a matter for discussion, but in all probability it is due to some local obstruction in the coronary circulation which may be organic, spasmodic, or a combination of both. The fact that the radial pulse varies in different cases, the pressure being sometimes high and at other times low, indicates that the attacks cannot invariably be attributed to increased resistance in the peripheral circulation. It has been suggested that angina pectoris is due to strain on the heart by obstruction in the arterial system, and that, while in certain cases the vascular pressure may be actually low, nevertheless it may be too high for the capabilities of the myocardium.

The treatment of those two forms of angina will be entirely different during the seizures, but as a rule it is identical between the paroxysms. Since cardiac asthma is due to failure of the right ventricle, rapidly acting stimulants, such as caffeine, camphor, or strophanthus, will be indicated for the relief of the paroxysm; while angina pectoris, on account of the coronary spasm, will call for vasodilators such as amyl nitrite, nitroglycerin, or morphine. It not infrequently happens that the subject of coronary spasm is also suffering from a weak heart, and under such circumstances a combination of heart stimulant and antispasmodic is demanded. Between the attacks the treatment is that which has been recommended in cases of chronic myocarditis and arteriosclerosis. The regulation of diet, in regard to both variety and quantity, so that the circulation never will be

overloaded with food or waste material, is of the greatest importance. Avoidance of mental and physical strain and the regulation of exercise in accordance with the capabilities of each individual case must be carefully observed.

The administration of arsenic and the prolonged use of iodides, in small doses, for a period of several months will be found in many instances to have a very beneficial effect on both the cardiac muscle and the blood-vessels. And last, the judicious use should never be neglected of remedies which will aid in eliminating by their natural channels all toxic substances resulting from physiological activity or food metabolism. W. W. Kerr (Journal American Medical Association, May 29, 1909).

BISMUTH POISONING.

The following symptoms are produced by bismuth: Blackish discoloration of the mucous membranes of the digestive tract, inflammation of the tissues in the mouth, with swelling, excoriation or croupous changes, salivation and loosening of the teeth, nausea, pains along the œsophagus, dysphagia, vomiting, distention of the abdomen, diarrhœa, diminution of the quantity of urine, albuminuria, cylindruria, desquamative nephritis and parenchymatous degeneration of the kidney, disturbances of the pulse, singyltus, coldness of the body, dyspnœa, cyanosis, collapse, headache, fever and delirium. The writer suggests magnetic iron oxide as a substitute for X-ray absorption. Lewin (Münchener medizinische Wochenschrift, March 30, 1909).

BRONCHIAL ASTHMA, ATROPINE IN THE TREATMENT OF.

The writer speaks for the wider use of atropine in the treatment of bronchial asthma. He believes it exceedingly valuable for certain cases, especially those with a marked neurotic element. The histories of seven severe cases of bronchial asthma treated by atropine with very encouraging results are cited. In one of these cases the author not only succeeded in arresting the acute attacks, but the patient was so much improved that there was no recurrence of attacks for ten months. Previously this patient had been constantly affected for twenty years. He prescribes atropine in pills, each pill containing 0.0005 gram ($\frac{1}{120}$ grain). One pill a day is first given, then, after two or three days, the dose is gradually increased to a total of from four to six pills a day. When this amount has been reached, the amount is gradually reduced to one pill a day. The writer believes that atropine not only will arrest an attack, but it also will prevent a recurrence. One great advantage is that atropine can be advantageously used as a substitute for morphine, or may be alternated with morphine. Terray (Medizinische Klinik, Bd. iii, S. 79, 1909; American Journal Medical Sciences, June, 1909).

CEREBROSPINAL MENINGITIS, EPIDEMIC.

Seeing that tuberculous meningitis is the one with which the diagnosis of epidemic cerebrospinal meningitis is liable to be confounded, the writer notes the following differentiation: In the epidemic form the onset is sudden, while in the tuberculous type it is slow. Temperature, eyes, and pulse are about the same in each disease. The temperature in the tuberculous variety may correspond more nearly to the tuberculous type of fever. Neck symptoms, Kernig's sign; spasm of the extremities and paralysis, are more marked in the

epidemic form. Cerebral pressure, as shown by the fontanelles, is more marked in the epidemic type. There is a high leucocyte count in the epidemic type, while there is a low count in the tuberculous variety. We have the history of an epidemic variety, and a history of tuberculosis in the tuberculous form. In the epidemic variety the cerebrospinal fluid is turbid and contains polymorphonuclear leucocytes in excess, and the meningococcus. In the tuberculous type the fluid is clear and contains lymphocytes in excess and the tubercle bacilli. W. M. McCabe (Southern Medical Journal, April, 1909).

EXOPHTHALMIC GOITER AND PREGNANCY.

Basedow's disease is a rare complication of pregnancy, and it exerts a pernicious influence upon that condition. Cases which have been reported show important kidney symptoms, including albuminuria, glycosuria, and renal casts. Vomiting and diarrhœa are also of common occurrence. Skin lesions are profuse perspiration, erythema, urticaria, œdema, and falling of the hair. The condition of the heart and arteries predispose to spontaneous abortion, premature separation of the placenta, and postpartum hæmorrhage. The heart may be dilated, its valves insufficient, its muscle the seat of fatty degeneration. A pregnant patient with goiter may grow rapidly worse as pregnancy progresses, and die in the early months under conditions similar to those with the pernicious vomiting of pregnancy. Or the bad symptoms may be in abeyance during pregnancy and recur after delivery. Recurring pregnancy is unfavorable in those who have goiter. The fœtal mortality is higher than the maternal. If the bad symptoms are not promptly relievable, pregnancy should be terminated. The thyroid gland should not be extirpated during pregnancy. H. M. Stowe (American Journal of Obstetrics, May, 1909).

FEVER IN INFECTION, ACTION OF.

The generally accepted opinion in regard to febrile temperatures is that they are part of the defenses of the organism, but certain injury is connected with them, which compels us, under some circumstances, to strive to reduce the febrile temperature. In infectious diseases there is increased destruction of albumin, both as a result of the high temperature and as a result of the causes inducing the fever. With a temperature under 104 F. the share of the fever in this increased destruction of albumin is comparatively so small as to be negligible. The changes in the corpuscles and in the proportion of hæmoglobin are the work of the infectious cause, and are not the results of the increased temperature. The author's experiments show that the agglutinins are increased in the heated rabbits; the higher temperature favors the production of agglutinins, as also of antitoxins and bacteriolysins. On the whole, he concludes, the febrile temperature, if not excessive, must be regarded as a process which does much more good than harm. It is a manifestation of the efforts of the organism to neutralize or get rid of the invading bacteria or toxins. Fever under 104° F. should not be combated unless in case of severe disturbances of the central nervous system, such as headaches, stupor or excitement. Antipyretic measures in these cases are not directed against the high temperature so much as against the other symptoms. If antipyretic measures become necessary they

should not be too severe, merely tepid baths with mild spongings, and, possibly, a moderate use of antipyretic drugs, never cold baths, according to Brand or Liebermeister. F. Rolly (Münchener medizinische Wochenschrift, April 13, 1909; Journal of the American Medical Association, May 29, 1909).

FURUNCULOSIS AND PEMPHIGUS IN CHILDREN, SWEATING AND MERCURIAL BATHS FOR.

The author has applied, on a large scale, Lewandowsky's method of dislodging the staphylococci from their nests in the horny layer of the skin where they start the abscesses. This is accomplished by vigorous sweating; the staphylococci thus drawn forth are then killed by immersing the child in a bath of 1 to 10,000 solution of mercuric chlorid. The child is first given a hot bath, and then the pack, with warm drinks, and, possibly, from 0.2 to 0.3 Gm. (3 to 5 grains) aspirin. The furuncles are opened and sponged out in the bath, and the body lightly rubbed. The child is then rinsed off, wiped dry, and dusted with talcum powder. This procedure is repeated every day for two or three days, the loss of fluids being compensated by plenty of warm drinks. The children tolerate the sweating and baths well, and in a number of cases in which all other measures had proved ineffectual, the furunculosis was cured by the end of one or two weeks, and the general health much improved under the cautious diet. This treatment has proved successful even with very frail infants suffering from general furunculosis. The same method has been applied with excellent results in the acute pemphigus of the new-born, supplemented by application of a mixture of 5 parts ichthyol and 5 parts glycerin in 100 parts water. A. Reiche (Therapeutische Monatschefte, May, 1909; Journal of the American Medical Association, June 12, 1909).

INTESTINAL OBSTRUCTION.

The writer considers that intestinal obstruction is due to prevention of the normal interrelations and coördination of secretions of different parts of the intestinal tract. He shows evidence that the cause of shock in these cases cannot be attributed to traumatic effects upon the nervous system or to bacterial action, except in some cases where the obstruction is low. Intestinal obstruction is known to be productive of more severe symptoms the higher up in the intestinal tract it occurs. In a large number of animal experiments the writer showed that the symptoms are most severe if the obstruction is less than 35 centimeters from the duodenal papilla, and much less severe if the obstruction is more than 35 centimeters from this point. When the obstruction is close to the duodenum the animal dies with symptoms similar to those of tetany. The writer, therefore, suspects that in high obstructions some toxic substance is present which fails to be neutralized by a hypothetical normal antibody. With the bile conducted by tube into the lower portion of the gut, no change in results occurred. But when the pancreatic secretion was conducted into the lower segment the fatal symptoms failed to appear. Thus, while the evidence is as yet not conclusive, it is suggested that death in high intestinal obstruction is due to the toxic action of a pancreatic product, possibly trypsin, which is deprived of its normal antibody. In treatment, irrigation into a stoma of the

duodenum upward and out of an œsophageal tube is suggested. J. W. D. Maury (American Journal Medical Sciences, May, 1909).

LEUCORRHŒA, TREATMENT OF.

The writer deplores the present custom of treating leucorrhœa with douches, etc., stating that the same principle should be applied here as to other secreting lesions, that is, to absorb the secretion and keep the surface dry, thus giving the parts a chance to heal. This is accomplished by dusting with a dry powder, and for which the writer has found bolus alba the most convenient, inexpensive and effectual. The powder is applied at the same time the walls of the vagina are distended with air, thus smoothing out all the folds and recesses. This is accomplished with a pear-shaped glass bulb with a reservoir opening into a tube which passes through the glass pear connected with a rubber bulb. The glass bulb closes the entrance to the vagina air-tight, and pressure on the rubber bulb fills the vagina with air, and at the same time sprays it with the dry powder. The author calls this little apparatus a "siccator," and has obtained good results with it in 100 cases. About once a week a cleansing douche is ordered, followed by the dry powder. Good results were also obtained in acute gonorrhœal affections, senile colpitus, inoperable cancer, etc. M. Nassauer (Münchener medizinische Wochenschrift, April 13, 1909; Journal of the American Medical Association, May 29, 1909).

MATERNAL MILK AS AN IMMUNIZING AGENT TO THE NURSLING.

The prevailing custom of considering only the nutritional values of milk and other forms of food used in the artificial feeding of infants is partly responsible for the great mortality that prevails among them, especially during the first year. The protection of the infant against infection depending in no small degree upon bactericidal and antitoxic substances physiologically supplied to it in the maternal milk, the protective properties of any artificial food should receive attention as well as its nutritional values. All phases of the problem indicate that, of the various modes of feeding, direct maternal nursing affords the greatest protection to the infant; it follows, therefore, that all should be done in our power to promote the abandonment of artificial feeding, and thus reduce greatly the mortality among infants. L. T. de M. Sajous (University of Pennsylvania Medical Bulletin, June, 1909).

MYOCARDIAL INCOMPETENCE, CHRONIC CHOLECYSTITIS AS A CAUSE OF.

The writer reports eleven cases divided into four groups. A healthy heart muscle may endure such a disturbing influence or may recover quickly from its derangement of function. A myocardium, already the seat of structural disease, on the contrary, is seriously affected by conditions of strain or by illness, which otherwise would prove harmless. Therefore, since chronic infection of the gall-bladder manifests itself chiefly in persons at or past middle age, when presumably the heart muscle is no longer so able to resist attacks, there are furnished the conditions capable of producing the symptom complex reported in these cases. The explanation of the baneful effects on the heart of some cases of gall-bladder disease and not of others is hypothetical, and accordingly several theories

may be advanced: (1) The circulation in the blood of bacteria or their toxines; (2) the depressing influence of bile constituents on the myocardium; (3) disturbance of the splanchnic circulation and secondarily of the systemic circulation and heart; (4) a reflex inhibition through irritation of the vagus. It is quite possible that a different explanation is applicable to different cases, and, moreover, that there must be a predisposing cause residing in the heart muscle, that is, chronic myocarditis, in consequence of which the heart is unfavorably affected by influences which a healthy myocardium would be able to resist. R. H. Babcock (Journal of the American Medical Association, June 12, 1909).

MYOPATHY AND SYRINGOMYELIA.

These two maladies ought not to be confounded, although they are both diseases of development. The one is defective structural formation in the spinal cord, whereby cavities are left in the process of its development or portions of embryonic neuroglial tissue fail to achieve their change into nerve elements, but remain as tracts of low consistence, which break down into cavities. These enlarge by distention, and thus cause symptoms, or the residual tissue may increase by a slow process of growth. Myopathy, or muscular dystrophy, is a defect of muscular growth, not dependent on the nervous system, but inherent in the muscles, by which the fibers fail, sometimes early in life, sometimes later. The interstitial tissue grasps the nutritional influence and increases, but not enough to compensate for the defect in the fibers, unless fat forms among them, when the bulk of the feeble muscles may be much increased. This is the case in the early variety, the pseudohypertrophic form, which is known best; in this the muscles vary in size, the calves being usually largest, the extensors of the knees often increase in size in the lower part, the infraspinati are large, the lower parts of the pectoralis and the latissimus dorsi are small, and often they seem almost absent. The face is free. This form affects chiefly males, females seldom; sometimes all the males of a family suffer, and all the females escape, but transmit the disease to their sons. The malady increases in degree and extent as its subjects grow up; it impairs the power of breathing until some pulmonary disease develops; or it may be some slight catarrh, which would be a trifle to a normal individual, that ends the feeble life soon after adult age has been attained. But there are other forms of myopathy which do not present the increased size of muscles. On the contrary, all or most lessen in size, though often not to the same degree as in spinal atrophy. A more abundant growth of the interstitial tissue takes place, but it does not become the seat of fat formation, partly, perhaps, because the change usually takes place after the period of growth is over. The author reports two cases in which he demonstrates the distinctive points of myopathy and syringomyelia. W. R. Gowers (British Medical Journal, May 8, 1909).

NITRITES, LOWERING OF BLOOD-PRESSURE BY.

Experiments by the authors with amyl nitrite, nitroglycerin, sodium nitrite, and erythrol tetranitrite show that these substances all cause a uniform percentage fall of blood-pressure; the higher the blood-pressure the greater the fall. The effect is, within

certain limits, directly proportionate to the size of the dose. While the effect of amyl nitrite inhalations is almost instantaneous, the action of nitroglycerin, given by mouth, begins in about two minutes, and, therefore, nothing is gained by resorting to the hypodermic use of this drug. Headache following the administration of the nitrite seldom occurs when the blood-pressure is originally high. Even very sclerotic arteries respond readily to nitrites, and in patients with arterial hypertension the effect lasts much longer than is the case with normal individuals. Thus the duration of the action of erythrol tetranitrite in this series with hypertension averaged three hours, the minimum being reached in one hour, while in normal individuals the action lasted for an hour only. The action of sodium nitrite lasts one hour in the normal man and two in men with high blood-pressure. Nitroglycerin seems to last about one-half hour in either case.

The writers have found the most effective method of exhibiting these drugs to be as follows: Amyl nitrite by inhalation, nitroglycerin in the official 1-per-cent. solution, sodium nitrite in freshly-made solution, and erythrol in chocolate tablets. G. B. Wallace and A. S. Ringer (New York Medical Journal, June 12, 1909).

PANCREATIC GLYCOSURIA, RELATION OF THE THYROID AND ADRENALS TO.

The parathyroids play so important a part in the carbohydrate metabolism that the simultaneous removal of the pancreas and thyroids, when the parathyroids are not considered, can give no conclusive results. Nothing definite can be proved concerning the interrelation of the pancreas and adrenals by their simultaneous removal. Removal of the adrenals greatly increased the activity of the pancreas, at least with regard to its "external" secretion. The injection of secretin after removal of the adrenals gives more marked results than while the adrenals are in place. The pancreas is completely under the control of hormones. The hormone called secretin actively stimulates, and apparently the hormone of the adrenals inhibits, its activity. C. H. Stone (University of Pennsylvania Medical Bulletin, June, 1909).

RACHITIS FROM LIME STARVATION.

The deficit in lime may result from inadequate intake or from defective absorption with normal intake. Breast-milk may be deficient in lime, and it is important to note the lime contents of breast-milk, as well as its proportion of fat, albumin and carbohydrates. It is possible that a preparation of lime, phosphorus and codliver oil might increase the retention of lime, although in the writer's experience no benefit was derived from them except in rachitis. It is important to change the wet-nurse in case the lime content of the breast-milk cannot be kept normal. If cow's milk is given, it should not be diluted too much, giving at least one-third milk. The slightest deviation from normal in digestion or the digestive tract should be promptly treated to ward off disturbances in the intestinal functions which might affect the lime metabolism unfavorably. Rachitis due to lime starvation is liable to induce clinical phenomena more readily than true rachitis, but severe rachitic disturbances in a child exclude the pseudo-rachitis from lime starvation. During the onset of rachitis there is increased elimination of lime and phosphorus, the latter predominating, but in pseudo-

rachitis from lime starvation the elimination of lime predominates. J. A. Schabad (Berliner klinische Wochenschrift, May 3, 1909; Journal of the American Medical Association, June 5, 1909).

SCARLET FEVER CARRIERS.

The writer believes that desquamation is an unimportant factor in the spread of scarlet fever. He has often seen desquamating children play with other children, who did not contract the disease. Infected rooms are much more commonly at the bottom of furthering the disease. Another factor is the throat of an individual not really ill with the disease, but acting as host to the microörganisms. The most important cause, however, lies with the patients themselves, who may retain the causal agent for a long time (even months) in the secretions and discharges of the nose, mouth, ear, etc. From 30 to 50 per cent. of convalescing scarlet fever patients have discharging noses and ears. Mild scarlet fever cases are often not diagnosticated, but may still act as scarlet fever carriers through the discharges mentioned. Isolation should be strictly enforced during an epidemic, and the children of a family having a scarlet fever patient should not be permitted to attend school. Nasal and oral hygiene should be enforced; adenoids, tonsils, and carious teeth removed or treated. Disinfection of the premises after scarlet fever should never be neglected. C. Herrman (Archives of Pediatrics, vol. xxvi, p. 112, 1909).

TUBERCLE BACILLI, HUMAN AND BOVINE.

Human and bovine tubercle bacilli are distinctly different in most of their characteristics. The human subject may become the host for either form of tuberculous infection, human or bovine. Likewise, the bovine may be inoculated in the same way and under like conditions. Tuberculous infection of the respiratory tract will usually be found to be due to bacilli of the human type, while those of the bones, joints, and lymphatics are likely to be due to bacilli of the bovine type.

From clinical study of cases treated during the past five years, the writer concludes that an antitoxic vaccine or lymph may be derived from the bovine which has been previously immunized through the administration of attenuated doses of tubercle bacilli. Also that this immunity may be accomplished through the use of either human or bovine tubercle bacilli in the emulsion which is used for immunizing purposes. G. B. Sweeny (New York Medical Journal, June 19, 1909).

TUBERCULOSIS, INCIPIENT.

The writer considers that too many wait until bacilli are present in the sputum before making up their minds as to the diagnosis of tuberculosis. One has to be constantly on guard for the incipient signs, loss of weight, failing appetite, general debility, and increased pulse rate, and a daily slight elevation of temperature, or many cases of incipient disease will escape notice. Repeated examinations of the chest may have to be made before distinct signs are detected. Of these, one of the earliest is a change from the continuous, breezy, inspiratory rhythm to an interrupted, cog-wheel rhythm. Next in importance is the finding of fine, crepitant râles on inspiration. Cough may, or may not, be present. Hæmoptysis, when present, is most important.

Ninety per cent. of cases of hæmoptysis are said to be followed sooner or later by evidences of pulmonary tuberculosis. Percussion of the chest is frequently negative in the incipient stage. One of the most reliable signs of consolidation is the whispering voice sign.

The writer's experience has led him to believe that the ophthalmic test is much less reliable than the hypodermic test in incipient disease. Recent investigations have shown tuberculosis to be much more prevalent among infants and children than it was formerly supposed to be. He particularly emphasizes the fact that fine crackling râles often constitute the only physical signs to be found in incipient cases of pulmonary tuberculosis, and if they are persistently localized in one long, they may be considered almost pathognomonic of this disease. C. H. Johnston (Journal Michigan State Medical Society, May, 1909).

Book Reviews

Book on The Physician Himself and Things That Concern His Reputation and Success. By D. W. Cathell, M.D., the Twentieth Century Edition. Revised and Enlarged by the Author and His Son, William T. Cathell, A.M., M.D., Baltimore, Maryland. Philadelphia: F. A. Davis Company, Publishers, 1908. Price, $2.50.

This valuable book has been so long before the public, and has received, through a number of editions, such commendatory consideration from leading men of the medical profession that the new, or twentieth century edition, hardly needs a formal introduction, other than that it has been carefully revised, new material added, and many new and valuable suggestions introduced. As in previous editions, the various phases of the doctor's life is considered in detail, and many points which often open up avenues for bitter disputes, and not infrequently cause a breach in the closest of friendships, are treated in the most skilful manner. Nothing is more important to the young physician than a right beginning, for it is at this time that he is laying the foundation which is to determine a career of success or failure,

"For thus the world goes round and round,
Some go up and some go down."

It seems impossible for any man, whether he be young or old in the practice of medicine, to read this book and not finish it with loftier motives, a purer heart, and a higher regard for the responsibilities in the noble profession which he represents.—R. B. S.

Diseases of the Skin and the Eruptive Fevers. By Jay Frank Schamberg, M.D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine. Octavo of 534 Pages, Illustrated. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $3.00 net.

If there ever was a book written to supply the general practitioner precisely what he needs in the field of dermatology, Schamberg's certainly was. Not an unnecessary word has been used, and yet each subject is replete with information calculated to give a clear insight into the nature of the disease—besides, of course, its symptoms, diagnosis, etiology and prognosis—and its treatment. The latter includes those measures which have been found of exceptional value by the author. The diagnosis is greatly facilitated by the numerous and excellent illustrations that the book contains. Syphilodermata are very properly given considerable space, both the acquired and congenital forms being treated at length. The acute eruptive fevers, especially small-pox, are treated at considerable length, and constitute a most valuable addition to the work, owing to its author's vast experience.

Refraction and How to Refract, Including Sections on Optics, Retinoscopy, The Fitting of Spectacles and Eye-glasses, etc. By James Thorington, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine; Member of the American Ophthalmological Society; Fellow of the College of Physicians of Philadelphia, etc. Fourth Edition. Two Hundred and Twenty Illustrations, Thirteen of which are Colored. Philadelphia: P. Blakiston's Son & Co., 1909. Price, $1.50 net.

In this attractive book of 324 pages are set forth clearly the essential facts bearing on the diagnosis and correction of the mechanical ocular defects. The author has sought to make the text readable and easily understood by omitting all complex mathematical considerations, and to present the subject in the most practical and useful manner for both practitioners and students. The first chapter very properly deals with optics, forming a basis for the understanding of the methods of diagnosis and treatment which follow. Chapter II considers the mechanism of vision in the normal eye, and the means of determining visual acuity and the powers of accommodation and convergence. Several forms of test-type are illustrated. The ophthalmoscope and its methods of use—direct and indirect—are next described. The various forms of ametropia—hyperopia, myopia, and astigmatism—are then given, the causes, varieties, symptoms and diagnosis of each form being considered. No less than sixteen methods available in the diagnosis of astigmatism are mentioned, including a large variety of astigmatic charts. Chapter VI discusses retinoscopy and its application in the several forms of ocular defect. Chapter VII considers the disorders of the extrinsic eye-muscles. Succeeding chapters include the uses of mydriatics, asthenia, systematic examination of the eyes, and a very practical section on "How to Refract," with a series of eleven cases illustrating the commoner ocular defects with which the practitioner has to deal. The final pages are devoted to presbyopia, aphakia, anisometropia, the construction of lenses, and directions for the proper adjustment of spectacles and eye-glass frames. There are numerous diagrams and figures illustrating very clearly the principles and instruments discussed. On the whole, the work has been carefully planned and neatly executed. It should prove of great use to the busy practitioner, and will undoubtedly become a favorite with any student into whose hands it may fall.

A Text-book of Botany and Pharmacognosy. Intended for the Use of Students of Pharmacy, as a Reference Book for Pharmacists, and as a Hand-book for Food and Drug Analysts. By Henry Kraemer, Ph.B., Ph.D., Professor of Botany and Pharmacognosy, and Director of the Microscopical Laboratory, in the Philadelphia College of Pharmacy; Member of the Committee of Revision of the Pharmacopœia of the United States of America; Corresponding Member of the Société de Pharmacie de Paris, etc. Illustrated with over 300 Plates, comprising about 2,000 Figures. Third Revised and Enlarged Edition. Philadelphia and London: J. B. Lippincott Company.

The third edition of Dr. Kraemer's excellent text-book contains changes in the illustrations calculated to enhance the usefulness of the work as well as its appearance; a review of the results of research published during the preceding year. In addition the sections on reagents have been considerably extended with a view to affording greater assistance to the student and practical worker. The subjects covered are: A description of the principle groups of plants; the outer morphology of angiosperms, the inner morphology of the higher plants; a classification of angiosperms yielding vegetable drugs; the cultivation of medicinal plants; pharmacognosy, *i.e.*, the external characters, gross structure, histology and chemical constituents; and reagents and microscopical technique.

Although the work is intended for students of pharmacy, as a reference book for pharmacists, and as a hand-book for food and drug analysts, it is also a valuable work for those members of the medical profession who teach pharmacology or who do analytical work along any of its lines. It is also a valuable reference book for writers on therapeutics who wish to consider with due care the morphology of each drug studied. In fact, Professor Kraemer's work, owing to its completeness and excellence, would constitute a valuable addition to the library of any physician who desires to acquire a closer insight into plants he is constantly using in the treatment of disease, than he acquires from the average text-book on materia medica and therapeutics available to physicians.

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Address

ADDRESS AT THE COMMENCEMENT EXERCISES OF THE MEDICO-CHIRURGICAL COLLEGE AND HOSPITAL, PHILADELPHIA, PA., ON JUNE 5, 1909.

BY HON. CHAUNCEY M. DEPEW.

MY FRIENDS: There is no day in life more interesting or important than the one which marks the close of scholastic studies and the entrance upon the world. It is a period which captures the attention of all ages. To the eager youth it is full of hope and ambition, to the man in middle life still struggling it is a delight to revisit the scenes he loves to recall, and to the old alumnus whose lifework is practically completed commencement day has unequalled charm in participation, if he can get to his Alma Mater and in reminiscences if he cannot.

The month of June in our country is the one set apart for graduation day in our academies, colleges, universities and professional schools. The leaves upon the trees, the flowers upon the bushes, the growing harvests in the fields are not more abundant than the advice which is poured out on these occasions to the youth of our land in this blessed month. I am far from decrying this advice or its value. Some of it may convey lessons impossible to learn or to live up to, but on a whole it has great value.

One of the most gratifying of the many pleasant things which occur to me is to meet a man who says, "Twenty, twenty-five, thirty or forty years ago you made a speech at my college which determined my career." But, gentlemen, your career is fixed by the profession which you have selected. There is none more ancient, more honorable or possessing greater opportunities for distinction and usefulness than medicine.

The pessimist of to-day tells the young man that owing to modern conditions there are no chances left for him in life, while the optimist cries, "They are as good as ever." I owe my vigorous age to the fact that I am an optimist and always have been. The wider my observation and the larger my experience the more I am convinced that the opportunities under our government are greater than ever for ambitious and equipped youth.

The first duties which come to you will be those of citizenship. Under our institutions that means large responsibilities. For unnumbered centuries the world has been governed from the top; first, the king, who rules by divine right. According to that conception the people live and labor and fight and die only for him. Next comes the devolution of power from the throne to a privileged class who were educated and trained for government and who firmly believe that the distribution of this power among the masses meant the distribution of property and the overthrow of the buttresses which law has built about civilization. But with the settlement in the wilderness of North America by a virile race who already had some education in self-government and much experience in religious liberty a new era dawned upon the world. After three hundred years this wonderful experiment reversing the rule of the ages is a demonstrated and triumphant success. Government of the people and by the people is the best in the world. Liberty and law go hand in hand together, and universal education at the expense of the State destroys all class distinction and brings every youth up not only to an appreciation and understanding of but to a capacity for government. Every American is a sovereign because he is taught to be. "I live up to and maintain the traditions of my house," says the Bourbon king, but "I live up to and maintain the liberty taught in the Declaration of Independence, and the practice in American life of the equality of all men before the law and the equal opportunity of all for the honors and rewards of life according to their character, industry, capacity and equipment," says the American citizen sovereign. Citizen sovereignty has its duties and the better educated the sovereign the larger his influence. The doctor, the minister and the lawyer are powers in their several communities. Every mechanical trade requires a training of the muscles until they are so perfected that the artisan can accomplish more and more profitably and do more and more usefully than the untrained laborer. The brain increases its power by training the same as do the muscles. The ability to grasp, to absorb and to teach comes with education, and especially with technical education, along professional lines. Questions are constantly arising in every community which profoundly affect its welfare. Reform must always be active or there will be municipal, State and universal stagnation. Reform is the refuge of demagogues, charlatans and half-baked philanthropists. The word is so abused that one can say of it almost what Madame Roland said at the foot of the scaffold as she was ascending to be guillotined, "Oh! liberty, what crimes are committed in thy name." But in a large sense every movement for more school accommodations and better ones, for better roads and highways, for more efficient government in villages and cities and in the State, for more intelligent treatment of the insane, helpless, injured and diseased, for

the improvement of sanitation and the promotion of health, is practical reform.

Every citizen should have his party and his church. I have no patience with the man who, worse than the Pharisee, not only says, "I am holier than thou," but declines to take any part in that work of organization which makes good or bad laws, which benefits or ruins peoples. It is not necessary for the doctor to be so aggressive in his politics that his practice will be confined to Republicans, Democrats or Independents. He need not take the position which would make him offensive to those who disagree with him, but he can perform excellent service in helping to purify or to keep pure the party to which he belongs. The doctor has a larger public duty because of his larger intelligence than most citizens. He recognizes that health and wholesome thinking and action come from men and women who lead healthy and wholesome lives and possess vigor and health. Sanitation in new communities is expensive to the taxpayer and inconvenient to the citizen and is always fought, but here the doctor should be a leader. The people who supply milk full of tuberculosis germs will resist the remedies which are necessary for the disinfection of their stables and the riparian owners who are polluting the water supply with typhoid germs and other poisonous bacteria will always fight the measures which will compel them to remove and remedy the fault. Here again the doctor should put his finger upon the source of the disease.

A young man should belong to some church. Any faith is better than none. It is the peculiarity of church work, and especially in the manifold duties imposed by modern conditions, that it is a liberal education for mind, heart and muscles. Life is full of compromises and they are absolutely essential. No man can live unto himself and for himself alone. The party or the church must be made up by many minds, and the individual must recognize early the lesson that the success of any organization is upon the principle; in essentials, unity; in non-essentials, liberty. Each individual by surrendering much to the judgment of the majority secures the success of the cohesive whole represented by a militant organization which wins for him in the main that kind of government which he believes best for the country. Our fathers, in the formation of our government, determined that the wisest method for its perpetuity was to provide as far as possible; the first, for intelligent citizenship, and next for such essentials as would prevent the wild passions of an hour crystallizing into legislation which might be injurious or fatal to the public welfare. So to effectuate this they created a representative government. They believed that as the country became more populous, communities more crowded, the struggle of competition for earning a living more severe, government should be delegated by the people in frequent elections to those whom they could trust and who would devote themselves to carrying out the measures which would be for the best interests of all. They pinned their faith on representative government. To make this representative government safe, sound and conservative they had two houses of the legislative branch, and an executive with large powers of recommendation and of veto, a written constitution upon broad lines within which only could action be had, and a Supreme Court limited in number and with a life tenure, removed from the

passions and prejudices of the hour, who should decide whether the act as finally perfected by the legislative and executive authority came within the powers granted by the written constitution.

Medicine has been practiced since Eve gave the apple to Adam. As then and since then until with the present memory it has been largely experimental. The Greek physician who cured Macænas, the Prime Minister to the Emperor Augustus, of insomnia by arranging a waterfall until its trickling noise induced sleep, knew no other method. To-day medical science traces insomnia to its cause and has found its almost infallible cure. You have heard of the young doctor who diagnosed a case of typhoid fever, and coming around the next day found the farmer in the field and was informed by his wife that he had been cured by a good, old-fashioned dish of corn beef and cabbage. He wrote in his diary, "For typhoid fever, corn beef and cabbage," and when he next prescribed it the patient died in an hour and he wrote in his diary, "Corn beef and cabbage for typhoid fever. Does not work every time."

Happily for mankind as well as for the profession legislation is becoming more and more rigid in regard to admission to practice and the powers of a medical college to give a diploma. Neither Galen nor Hippocrates, the fathers of medicine, could graduate from any well administered college to-day. Within the last thirty years medicine has advanced with greater strides and to more beneficent results than during all the ages which are behind. Surgery can almost take apart and reconstruct a living organism. The X-ray reveals what could formerly only be discovered by the knife and often with fatal results. Antitoxin has minimized to almost nothing the dangers of diphtheria and other diagnoses which were regarded as fatal. Medical men are not satisfied with the present but they are exploring the past. The mummy of the Pharaoh of the Exodus perfectly preserved is in the museum at Cairo. Not long since a company of doctors undertook by an examination of the mummy to find the source of his phenomenal cruelty against a whole people. They discovered that he was a sufferer from chronic toothache which there was no dentistry at that period to alleviate. We know nothing of Horace except what is found in his writings, and yet another company of doctors have demonstrated that the reason he died in his early prime was because the life in his poems demonstrates that his trouble was sclerosis of the liver.

One of the great heroes of the Revolutionary War and the Vice President of the United States, whose remains, with magnificent ceremonial, were removed from the Congressional Cemetery at Washington, where they had rested for a hundred years, to his home in Kingston, was Governor George Clinton. The coffin in which he was buried was opened and the doctors instantly decided, upon an examination, that his death was due to pneumonia, a disease fatal and little understood in that early period. Washington was killed at sixty-seven by excessive bleeding for a quinsy sore throat.

Time is practically unlimited for young practitioners. It becomes more valuable as they grow more successful. Except on the score of income it is not wholly a misfortune but rather an opportunity. Most young men waste opportunity, with the result that when they are called they are found wanting.

It is in this period of halting business that the industrious, energetic and far-sighted man perfects the learning of the schools and vastly enlarges it. He has learned more or less thoroughly the text-books and the lectures, but in the review for which he has ample leisure he will confirm the teachings of the college, and more than that can absorb the literature of his profession. The curriculum made him a drudge; the literature will make him an enthusiast. Few appreciate the value of odd minutes. Scraps of time instead of being thrown into the wastebasket can be utilized for a liberal education. The odd half hours when you are ready, but the lunch or the dinner is not, will soon enable you to finish a volume. When you are married you will discover that punctuality is not a gift of nature but a habit. You will find that is a pardonable peculiarity of the female mind to remember something at the last minute which requires a halt in the procession to the church on Sunday or to the theatre or concert or lecture on week days. It may be that in taking the last and inevitable look into the glass there is a touch missing which a mere man would not notice but she knows that other women would, or it may be that the voice of the child, while making the father impatient, simply arouses solicitude in the mother. Now, do not quarrel or show temper or stamp around in a heat under these circumstances. If you do, you will not listen to the sermon or enjoy the play. But have your book ready and read. Your wife will think you are an angel, your temper and temperament will be improved and your knowledge grow apace.

Every professional man, in fact any man in any occupation should have a hobby or a fad. A man who uses one set of muscles grows abnormally on one side to the decrease in vigor or paralysis of the other. So with the brain. A man who is simply a lawyer, a doctor, a dentist, a scientist and nothing else grows narrow in his general conception of the world about him and his place and duties in it if his whole mind and time are concentrated on his pursuit. A brilliant example of what I mean was Doctor Oliver Wendell Holmes. He was great in his profession, and greater because he cultivated general literature. His "Autocrat of the Breakfast Table," is one of the most delightful as well as the wisest of books. In it is concentrated the philosophy of life taught by contact with human nature in a large general practice. In the faculty of this city of Philadelphia is a brilliant illustration in Doctor Weir Mitchell. Our greatest lawyers, like Webster in his day, and Evarts in his day, and Choate and Root now, and your John G. Johnson are greater in their profession because of the all-round constant exercise of every faculty of the brain in statecraft, diplomacy, on the platform and in the study and appreciation of the highest art of all times. Every profession is a jealous mistress and requires the best thought and time of her votary, but she is a wise mistress and knows that the attentions to her are fresher and brighter if her lover takes recreations and vacations.

The professional man, because of his wider culture and more accurate training, is a leader in every community. He founds or he energizes the Young Men's Christian Association. He is active in movements for the organization of the savings bank, or committees which have for their object the

promotion of the many things which are necessary for the public welfare. It is his mission to expose frauds and fools. Your profession more than any other is the victim of these parasites of society. The itinerant dentist will advertise in the village newspapers that he does every kind of work required by his profession without pain and leaves the village with crowns that have to be removed and teeth with their enamel destroyed by the acids which he used. So with the itinerant doctor who empties for a time the consulting offices of the local physician while he professes to accomplish miracles and does great and sometimes lasting injury to vital organs.

As soon as you can afford it get married but not before. It is a fearful handicap to a young professional man to have upon his hands a family without the means to care for them. The question of how much income is dependent upon the man, the girl and the locality in which they live, but if both husband and wife are wisely economical and good business managers and housekeepers it is astonishing, in these days when large incomes so fill the press and fire the imagination, upon how little a family can be very comfortable. "Stick, dig and save" is a good motto to have on the front page of your memorandum book. The practice of those three maxims will secure for you permanence, independence and a home.

The progress of the world in the last half century has been beyond precedent in all preceding ages—greater in your profession than in any other. The triumphs of the laboratory and the beneficent processes of invention have prolonged human life and increased human happiness. The chemist from coal tar alone has evolved some four hundred new articles of therapeutical value, while a piece of radium a little larger than a pinhead and worth five thousand dollars inserted beneath the skin is said to accomplish in fighting cancer more than all the hospitals of the world have been able to do. I know not whether it is true, but I saw an article the other day that they had discovered in one of the great research laboratories in New York that all the organs could be kept in cold storage indefinitely and used to replace those which had become impaired. According to a recent German authority genius is as much dependent upon the relation of heart, liver, kidneys, lungs and spleen to the human body as the divine fire to the brain. If this be so what marvels may come in the future by transfers from these cold storage establishments into the anatomy of plain, ordinary people? A Shakespeare or a Milton, a Homer or a Demosthenes may be among the possibilities of the doctor's skill.

Sidney Smith once remarked that a friendship broken may be renewed, a fortune lost may be regained, but a dinner gone is gone forever. We meant that you could never have the same dinner nor the same number of them in your life. There are assets for the right-minded man and woman which are never lost. Among them are the culture which comes from the college, the associations of undergraduate days, the faculty whose foibles of the student hour are virtues in the best recollections of after years, and the friendships formed from community of occupation and certain qualities of companionship which last through life.

Clinical Lecture

SCIATICA.

By JOHN V. SHOEMAKER, M.D., LL.D.,

Professor of Materia Medica, Therapeutics, Clinical Medicine and Diseases of the Skin in the Medico-Chirurgical College and Hospital of Philadelphia.

PHILADELPHIA.

GENTLEMEN: This patient presents an affection which is comparatively rare before the age of twenty-one years.

M. H. aged 52 years, nativity, U. S. A.

Family History.—The patient states that his mother is living and well; his father died from old age. He had six brothers and two sisters. One brother died in infancy and the other died at the age of 18 years from the kick of a horse. As to his sisters one died from apoplexy at the age of 43 years, while the other died at the age of 6 years from scarlet fever. His grandparents are all dead. Paternal and maternal grandfathers died of apoplexy while his paternal and maternal grandmother both died of old age. He does not possess any knowledge of the history of his uncles or aunts.

Previous Personal History.—As a child he had diphtheria, measles, and whooping-cough. Otherwise he had always been well and had enjoyed good health.

Social History.—He is married and is the father of two children—a son and a daughter all living and well.

Habits.—He drinks beer occasionally but never takes whiskey. As far back as he can remember he has only been intoxicated twice. He drinks three cups of coffee daily and does not chew or smoke tobacco, having abandoned this habit 14 years ago; denies any venereal diseases.

Present Illness.—About six years ago a heavy piece of iron fell upon his patella and injured it so badly that he was unable to walk for twenty-one days. Since then, he did not have any more trouble until the middle of last January when he experienced severe pain in the region of the coccyx and then it became more intense below the gluteal fold and in the upper part of the thigh. Then the region which corresponds to the anatomical distribution of the sciatic nerve became very tender and painful. The pain would start gradually above the hip joint and radiate down behind the knee to about the middle of the leg. This pain was very much aggravated when he would move the leg as in walking, due to the compression of the nerve. He also has a loss of the tendo Achilles reflex.

Diagnosis.—The diagnosis of this patient's trouble is quite easy and could not possibly be mistaken for any other disease than sciatica. The case is a typical one in that the pain follows the course of the sciatic nerve. The sharp

lancinating pain, tenderness over the sciatic nerve and the peculiar gait so characteristic suffice to prevent error in the diagnosis.

Differential Diagnosis.

Sciatica.	*Tabes Dorsalis.*
1. Absence of Argyll Robertson pupil.	1. Presence of Argyll Robertson pupil.
2. Develops rapidly.	2. Slower in development.
Sciatica.	*Disease of Hip Joint.*
1. Pain along the course of the nerve.	1. Joint tenderness and fixation.
2. Pain corresponds to the sciatic nerve.	2. Pain corresponds to the obturator nerve.
Sciatica.	*Neuralgia.*
1. Persistent pain.	1. Fleeting pain.
2. Tenderness along course of nerve.	2. No tenderness or very slight tenderness.

Pathology.—The autopsical findings show the condition of the nerve to be a perineuritis affecting also the adventitia. The nerve is swollen, soft and red in color due to the hyperæmia of the vasa nervorum and there may also be found minute extravasations of blood in the nerve. Under the microscope we observe round cell infiltration and the nerve is œdematous and tumefied. The inflammatory changes are observed in the perineurium and endoneurium. The primary changes are seen in the connective tissue and are most marked at the sciatic notch and in the middle of the thigh due to the fact that it is exposed to more irritation at these points. Then the myelin sheathes become involved, and finally the whole nerve.

Etiology.—This affection is caused by the same factors that cause neuritis elsewhere. It is by far the more common in men than in women and records show that it stands next to facial neuralgia in order of frequency. Those who are more especially liable to suffer from this disease are the gouty, rheumatic and neurotic individuals. It is unknown in children and occurs after twenty-one years of age. The most frequent exciting cause is exposure to cold and we therefore find it in those whose occupation exposes them to cold and wet weather or extreme changes of temperature. Other factors in the causation of this affection are compression which may be due to pelvic diseases such as constipation, tumors and other formations which may cause pressure, traumatism as contusions from blows below the sacrosciatic notch. Sciatica may also be attributed to syphilis but this is not a common cause. It may also be due to systematic poisons as in diabetes, typhoid fever, etc. Excessive muscular fatigue is a frequent cause and spinal diseases may also cause sciatica by giving rise to a neuritis by affecting the cauda equina.

Treatment.—The treatment depends largely upon the cause, which of course, must be removed if known. I believe the cause of this man's sciatica is due to exposure and heavy labor, consequently rest in bed with a splint applied to the leg will add materially in the cure of his neuritis.

I have found that an ointment containing adrenalin chloride 1-1000 solution to an ounce of petrolatum, well rubbed into the skin over the course of the nerve, very valuable. Three applications have thus far been made with appreciably good results.

High frequency electricity applied along the course of the nerve daily will

also be valuable. In our electrical room we have a splendid outfit of which he will receive the benefit.

Internally he should be given a remedy possessing alterative and tonic properties, and the drugs indicated can be given in a capsule as follows:—

℞ Arseni trioxidi ..... gr. ss.
Ferri pyrophosphatis solubilis ..... 3j.
Quininæ salicylatis ..... 3ss.
Aloini ..... gr. iss.
Sulphuris præcipitati ..... 3j.
Misce. Fiant capsulæ no. xx.
Signa: One capsule after each meal and at bedtime.

Prognosis.—It will require from one to two months to cure this patient, but I believe he will get perfectly well. The rest in bed and the high frequency current as employed under our direction will do more for him than the drugs.

Original Articles

A QUESTION IN THERAPEUTICS.

By BROSE HORNE, M.D.,
Late Physician Indiana State Prison.
GAS CITY, IND.

Observation teaches us that life is an unfoldment. By reason and experience we learn that the further we travel the more truth we can comprehend.

"To understand the things that are at our door is the best preparation for understanding those that lie beyond." Therapeutics is the foundation of our art: the criterion of the science. If the germ of decay attacks therapeutics it assails the most vital part of scientific medicine, for without it medicine has no excuse for existence.

We have a great question before us in therapeutics to-day for consideration, and that is—how to keep the influences of commercialism from destroying the art? I firmly believe that it is our duty to God and humanity, let consequences be what they may, to present the truth, as we see it. "All may not accept our conclusions, but our business should be to declare the truth. Society may deal with the truth as she pleases."

This may be the last time that I shall ever have the opportunity to write a medical paper, life is so uncertain. But if I knew this to be true I would prefer to stand alone, appreciating that I offend the combined interests of medical commercialism, and know I am right than be wrong and receive the applause of the rabble, that cheers you on to-day and burns you at the stake to-morrow. Commercialism has invaded all the arts and sciences. It has even influenced the most sacred things we have in life. No one appreciates this more than the physician. Medicine has become tinctured with the spirit

of commercialism to such an extent that it is at times with the greatest difficulty that we are enabled to define a certain therapeutic procedure, that rests on pure scientific research from one that has the influences of commercialism behind it.

Our only hopes rest in a return to the first principles—make an individual study of drug therapy—originate our own formulas, join hands with the honest apothecary and chemist. We should divorce the science and art of medicine, no matter at what cost, from all commercial influence. True medicine can never decline—the truth shall live—but unless we become liberal and do away with machine politics in our different medical organizations—cease first, last and always to sanction this medical trust that has been formed, we will see a decline in organized medicine as it exists to-day and possibly a total destruction and a replacement by the many medico-religious cults. Too many laws are an injury and when a class of men attempt to have laws passed for their own selfish interests in the course of time the laity will raise up in their indignation and destroy them.

The science of medicine is a broad and liberal science. We have handed down to us, through the ages, many truths. Medicine is a true religion in itself. No class of men see the inner lives of the people more than the physician—no class of men have a greater opportunity for doing good. It is a burning shame that mammon has invaded this science and to-day has it by the throat. The physician in all his poverty, misery and distress should raise up in all the dignity of his manhood and proclaim to the world that, "On this rock I build my Church." He should inform the investigators, who are uninformed, that Galen, a most eminent Roman physician, taught and practiced a form of "Mental Science," years before the birth of Jesus: that in many respects is equal if not superior to the many creeds that are being promulgated to-day. If you surround the truth with a creed it will perish. Organized religion (churchanity) and organized medicine, although doing much good, have also done much harm. They originate prejudice which causes one to resort at times to violence. They are weak in that a spirit of commercialism has developed in this age which has produced dire distress to true science. It is only by being liberal that we can hope to live. The spirit that burned Savanarola at the stake—that dragged Hypatia through the streets of Alexandria—forced Socrates to drink the hemlock and crucified Jesus to the cross still exists in a modified form and it emanates from creeds, frequently backed up by commercialism.

A serious matter confronts the physician of the age and day: a question of such importance that it will take the united efforts of all who hold true therapeutic progress above the shrewd tricks of medical commercialism, to combat it. The custom, handed down to us from the Dark Ages, of placing a collection of symptoms under a name and then giving a set formula for the named condition—instead of treating pathological lesions, and making an individual drug study—has evolved a nostrum practice that threatens the life of the science.

The almost universal use of dry, hard, "hand-me-down," ready made

tablets, pills and nostrums, with the name of the disease on the bottle, is one of the predominating evils. A physician who thinks for himself and has given the true principles of medicine any study, will appreciate at once that this tablet form of medication and nostrum practice, where the disease is named on the bottle, is a remainder of that old medical superstitution, which has been the stumbling block in the way of true scientific therapeutics from time immemorial.

The stomach and intestines cannot absorb any substances until it is reduced to a fluid form. The digestive organs are weak when disease exists in the body, and consequently, when a dry, hard tablet, that often can be driven into a board, is administered, no results, or at the best, no proper results, can be obtained. Many drugs, when reduced to a dry state, lose their therapeutic value. One prominent chemist, and the only one in the world to do so, when the tablet craze was at its height, prepared thousands of tablets from choice and carefully selected drugs: with care he selected each drug, to be sure of its purity, etc. He then carefully and by the most scientific means prepared tablets from these different drugs. He then distributed these tablets to different eminent physicians and had them use them in their practice. And what was the result? Every physician reported that he could not obtain the action from these tablets that he could from the fluid drugs. And, as a result, this eminent and honest chemist in his quiet way refused, at a great financial loss, to manufacture tablets. Not a tablet in the world bears his name.

It is with the minority school of medicine that the welfare of the true science of medicine rests. It will be the minority, by great self-sacrifice, that the decline of medicine will be prevented. Remember what Kaufman said, "Just one man in a hundred can see beyond his nose. The short-sighted people are in the majority—and the majority rules. Only imagination can visualize what is to be; most people have no imagination, therefore, they doubt and ridicule what they do not comprehend. To them the oak is never apparent in the acorn."

Tablets are dangerous because we are unable to determine the exact time in which they will act. Many of them may be taken and their absorption be delayed. Thus several tablets may accumulate and all of them be dissolved and appropriated by the body at the same time, by means of which we obtain a toxic dose. Tablets are difficult to assimulate. If this be true, why prescribe such a form of medication? It is an undisputed fact that the liquid form of medication is superior to all others. The action obtained is quicker, and the results much better. Inferior drugs can be concealed within a tablet or pill. What becomes of all the dry, worm-eaten drugs? The tablets may be unclean from frequent handling in the manipulation of manufacture, while the alcohol in the liquid drugs, even if certain unclean agents should get in them, will destroy it.

A girl, in a certain manufacturing establishment, where tablets and pills are made, was noticed to have coryza; she was packing these tablets—she was observed to wipe her nose with her fingers and then, without washing, reach and get a few more tablets and pack them. These tablets and pills are

manufactured by steam power, thousands of them a minute. They are frequently packed and labeled by boys and girls. These boys and girls have made mistakes in labeling and packing these tablets, as happened in an Eastern factory where the morphine tablets were packed in the purgative package, and *vice versa*. These were sent out to certain physicians, and serious results followed. You cannot swear from your personal knowledge, just what are in those pills and tablets, nor as to their purity, etc.

Puckner and Clark report (from American Medical Association), the results of examination of various brands of tablets, said to contain definite amounts of bismuth, opium and phenol. The tablets were purchased both direct from the manufacturers and in the open market. They were subjected to tests to determine the amount of phenol each contained. The methods of examination were the results of a long series of experiments and are described briefly: the results of the assays are given in tabulated form, and show that, assuming the amount of phenol claimed to be 100 per cent., the amount of phenol actually found in the tablets varied all the way from 12.66 per cent., to 72.65 per cent., the latter number being the highest. Incidental to obtaining the phenol contents of the tablets, the weights of the tablets were compared and found to vary as much as 34.35 per centum in one instance, and over 10 per centum in some others. The examination demonstrates the absurdity of sacrificing to mere convenience. "These tablets are a typical illustration of the attempts to produce, in elegant and palatable form, the impossible—impossible at least without care and expense. From the nature of the processes involved in the manufacture of a tablet, it is very difficult to produce one containing a definite amount of a volatile substance like carbolic acid. Accuracy in dosage is indispensable to the scientific administration of drugs. In medicinal preparations of the type just described, the essential—accuracy—is sacrificed for the merely desirable, convenience and palatability. To the extent to which physicians prescribe, as tablets, combinations of drugs that cannot be successfully put up in that form, to that extent does scientific medicine suffer."[1]

All kinds of microbes have been found upon and in these tablets and pills, notably those of diphtheria. The substance forming the basis of pills and tablets are rarely of a nature to destroy this dangerous element, which is introduced either in the constituents, or more often by manipulation in manufacture. In fact, the skin and the nasal cavities, even of a healthy man, abound in microbes, and they are still more abundant in laboratory attendants, too often in people who are not very careful of their persons. Thus, tablets and pills which require much handling may not only contribute to the cure of one disease, but at the same time introduce the germs of several others; this use of tablets and nostrums forms a serious question which the profession must deal with sooner or later.

As a system it is nothing more or less than a form of "Patent Medicine," practice, where the physician simply acts the part of a distributing agent for some tablet house. In order to keep up with true progress it becomes essential

[1] Druggists' Circular, September, 1908.

that we prepare our own formulas at the bedside, meeting the indications of each individual case. The art of pharmacy would become a thing of the past if this "Tablet System" should be universally adopted in medical practice. Let the apothecary understand the ethics of his profession and refuse to refill. Let the apothecary and physician work hand in hand and in this way we will not lose our individuality. The reason we have so many therapeutic nihilists in this country is that the physician becomes a slave to the tablet and nostrum habit.

The lack of knowledge of drug-therapy and the use of dry, hard tablets, and ready prepared nostrums on the part of physicians is the cause of the rapid growth of these medico-religious cults. If a patient is disappointed in the results of the physician's drugs—too often a dry, hard, ready-made tablet —they resort to other forms of healing, and scientific therapeutics must suffer from the ignorance of the physician in prescribing. This tablet and nostrum evil is not a school question but one of therapeutical science. The physician and the laity have been imposed upon. A man in a certain state combined two very common drugs—gave the combination a new name—advertised the new "cure all" broad cast: the physicians paid in their money—made this fellow rich, and in a shrewd way he used his money to control the medical press. Many medical journals are either owned, influenced or controlled by these tablet and patent medicine firms.

Not very long ago the Pure Food Commission gave notice that they would investigate a certain patent medicine. In one building in New York State there are several offices that represent these patent medicine interests. As soon as the word was sent out that this patent medicine was to be investigated—we find that one very prominent and pious congressman from New York State and also another very leading politician, who holds a very high office in our country —went to Washington and used their influence to stop this investigation.[2] It has been rumored, with much evidence to substantiate the truth of the rumor, that one very prominent senator, who was elected, was furnished the money for his campaign by a combination of patent medicine houses.

It is true that organized medicine fails to represent every physician: out of 230,000 physicians only about 28,000 belong to the national organizations. It has been the history of the world that all of the great and lasting work has been done by the non-conformist—men who would sacrifice all personal desires for the truth.

There is a crying need in this country for a national therapeutical organization in which men of all schools of medicine can join for investigation and enlightenment. Where isms and creeds will be cast aside; and where we can look the truth in the face. An organization that will refuse to endorse the efforts of any class who are prompted by the spirit of commercialism. Therapeutic research, if we desire truth, cannot afford to have, "A tin-can tied to its tail." I am not interested in the least in political manipulations: no selfish motives whatever prompt me in making these few remarks. Only a

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2 From Collier's Weekly, January 30, 1909.

love for a profession that I wish to serve, and the respect I have for the work, self-sacrifice, and deaths that my ancestors willingly gave drives me on to duty. If I must sacrifice all; if the ones I love, desert me because I go where duty calls; I trust that some invisible force will comfort me in my distress. I know that "The work of a man is to fight against the difficulties which his own proper activities have stirred up, and to conquer them." Because my own native State, through one organization refused to endorse in a frank manner, an effort to stamp out an evil in medicine, is no discouragement whatever: when we understand the influences behind the act. I know, and all men know, who do unselfish work that, "He gains the prize who can most endure, who faces issues, he who never shrinks, who waits, and watches and who always works."

This is an Age of Reason, and the future of true medicine rests in the hands of the unselfish minority. The true physician will, no matter from what school he graduated, divorce himself from the narrow prejudice of creeds and isms. He will stand up boldly for the true principles of medicine, and if in the end he must even give up his life for the truth his only regret will be that he did not have a thousand lives to give up for the same cause.

The future of this race rests in the education and enlightenment that will be imparted by the self-sacrificing physician. The future work rests in their hand by the nature of their work. This is an age of commercialism. The people have gone money-mad and sex-mad. In the unfoldment the true science of medicine, and its allied branches, will save the race, if saved at all. A true physician is not a man who goes about giving excuses for being here—his life is not an apology. He takes up his life task in honesty and sincerity; and takes a promise, "That he will go out in the world, not mailed in scorn, but in the armor of pure intent—great duties are before him; and great songs, and whether crowned or crownless when he falls it matters not, so God's work is done." Gladstone said, "Physicians will become the future leaders of nations."

REPORT OF TWO CASES OF INTESTINAL OBSTRUCTION COMPLICATING ADVANCED PREGNANCY: OPERATION: RECOVERY.*

By JOHN A. McGLINN, A.B., M.D.,

Assistant Professor of Gynecology in the Medico-Chirurgical College; Gynecologist to St. Agnes' Hospital, Philadelphia.

PHILADELPHIA.

Mrs. L. N., white, nullipara, age 26, admitted to the medical ward of St. Agnes' Hospital February 29, 1908. She gave the following history. Two weeks ago she developed tonsillitis and was compelled to go to bed. She then complained of pain in the frontal region, back and abdomen. Pain radiates from the epigastric region to the back particularly between the

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* Read before the Philadelphia Obstetrical Society, February, 1909.

shoulders. She has been constipated for the past ten days and vomits every time she eats. At no time has the vomit been fæcal in character. For two months previous to her present illness she had a cough but this has entirely disappeared.

She has had typhoid fever, rheumatism and the usual infectious diseases of childhood. Five years ago she broke her leg. This is the only surgical condition she ever had.

She was married five months ago. Since marriage she has not menstruated. Before marriage menstruation was always regular.

Physical Examination.—Lungs negative. Heart negative except for a slight thrill over the precordial region. Abdomen is greatly distended and tympanitic. She complains of pain and tenderness over the entire abdomen. The pain and tenderness is most marked in the epigastric region. The spleen cannot be palpated on account of the distention of the abdomen. The lower border of the liver is not palpable. Temperature on admission, 101 degrees F.; pulse 100, respirations 24.

Examination March 5th (five days after admission). Patient complains of very little pain. Tongue coated dark brown. Abdomen tympanitic except in right lower quadrant where there is dullness. On palpation a doughy mass seems to be present in this region.

From date of admission to March 6th, bowels have been constipated. After the use of high enemas small amounts of fæcal-stained mucus have been discharged. She does not pass flatus. She has been placed on eserine salicylate without results. Purgatives by the mouth have caused vomiting and no movement of the bowels has resulted.

An examination of the matter discharged after the enemas showed the following. Fæces dark brown in color about the consistency of cream. Alkaline in reaction. Many bacteria. Triple phosphates present in large amounts. Calcium phosphates present. Few vegetable cells present. Muscle fibres and fat cells not present.

Widal reaction not present.

Blood Examination.—March 6, 1908. Leucocytes, 7,800; polymorphonuclear, 64 per cent.; small lymphocytes, 26 per cent.; large lymphocytes, 6 per cent.; eosinophiles, 1 per cent.; myelocytes, 3 per cent.

The case was referred to me on March 6, 1908. An examination was made and the following points noted. No subjective signs of pregnancy except the absence of menses. No breast or abdominal signs of pregnancy found. Vulva slightly discolored and bathed in a discharge. Pulsation of the vaginal arteries present. Cervix enlarged and softened. Uterus could not be outlined on account of the abdominal distention and rigidity of the abdominal muscles. No mass could be palpated to the sides of the cervix. Free fluid could not be demonstrated in the abdominal cavity. No mass found in the abdominal cavity. The patient was etherized and examined but no additional information could be gained. The temperature at this time was 99⅖, pulse 118, respirations 26, general condition poor. A diagnosis of intestinal obstruction probably in the colon was made and abdominal section advised.

Operation.—March 7, 1908. Median abdominal incision. Ascending and transverse colon tremendously distended. Small intestines also distended. Gravid uterus reaching midway between the umbilicus and ensiform. No signs of inflammation anywhere in the lower abdomen. Appendix normal was not removed. At the splenic flexure of the colon a band of adhesions were found constricting the bowel. These were cut and the colon milked from the cæcum past the point of obstruction. Abdomen closed in layers. No difficulty was experienced in this case in bringing together the edges of the abdominal incision. Temperature dropped to normal the second day after operation and remained so until her discharge from the hospital. Bowels moved on the second day after the administration of calomel. No further difficulty in obtaining bowel evacuation. She was discharged from the hospital April 2, 1908.

Patient went to term and was delivered of a dead baby after a difficult labor. Uterus contracted normally and no complications arose during the puerperium.

Case II. Sara McG., white, multipara, age 43. Admitted to St. Agnes' Hospital December 28, 1908. She was sent in with a diagnosis of pregnancy at 6½ months, complicated by fæcal impaction.

The following history was obtained. Patient comes to the hospital complaining of inability to have a bowel movement, persistent vomiting and severe pain over the sigmoid flexure. Father died of asthma, mother of tuberculosis. No history of malignant disease obtainable.

She had chicken-pox and measles in early childhood. Is subject to colds and has a cough most of the time. Otherwise she has enjoyed good health.

Born in the United States. Puberty at 13 years. Menstrual history without interest. Married when 22 years old. She has had one child and one miscarriage. Labor was normal and the miscarriage without complication. Present illness began in October, 1908. It started with difficulty in having a stool. She would have frequent desire to defæcate but would be unable to empty her bowels. This effort was always associated with severe pain in the left inguinal region. She soon developed constant pain in this locality. She does not remember if this was associated with any symptoms of inflammation. Vomiting was persistent. At first the vomitus was dark green eventually becoming fæcal in character. The abdomen became greatly distended and there was marked rigidity especially over the left side low down.

Physical Examination.—Patient appears debilitated and weak. Heart, apex beat barely visible, palpable in fifth interspace, one finger's breadth outside the mid-clavicular line. Heart slightly enlarged on percussion. Muscles sounds of poor quality. Systolic murmur heard at the apex transmitted to the axilla. No thrill palpable. Lungs, expansion poor but equal over both sides. Tactile fremitus slightly increased on right side over apex. Slightly diminished over the left lower lobe posteriorly. Resonance impaired over the right apex posteriorly. Scattered râles heard all over right lung. Abdomen, greatly distended; tender all over and rigidity is marked. There is apparently a small mass in the left inguinal region. Temperature on admission 98

degrees, pulse 100, respirations 24. Urine negative for casts, albumin, sugar and indican. A leucocyte count made two days after admission showed 16,000 white cells. A differential count was not made. The pulse and temperature remained normal and the patient's general condition improved. There was no vomiting while she was in the hospital and all her pain disappeared. On account of the improvement in the condition of the patient we felt that we might be dealing with a fæcal impaction and every effort was made to obtain a bowel movement. In this we were unsuccessful and an operation was decided upon.

Operation.—Under ether anæsthesia a median abdominal incision was made and a growth the size of an orange involving the sigmoid was found. The colon above the point of obstruction was greatly distended and filled with liquid fæces. The colon was opened and drained. The mass was excised and an end-to-end anastomosis was made. The walls of the gut both above and below the growth were very friable, so that we had difficulty in preventing the sutures from tearing through. Fearing for the integrity of the anastomosis a small gauze drain was carried down to the site of operation and brought out of the lower angle of the wound. The incision was closed in layers and great difficulty was experienced in bringing the edges of the incision together though the uterus was not taken out of the abdominal cavity. I regretted at the time that I did not do a Cæsarean section as I felt sure that the incision would break down and that the patient would abort.

The bowels moved the day following operation without recourse to any measures to provoke the same. The temperature remained normal though the pulse rate was slightly increased. The drain was removed on the third day and was followed by a serous discharge. Several days later this discharge had a slight fæcal odor. This ceased in two days and the sinus entirely closed about the eighth day after operation. The sutures in the middle part of the wound cut through and the incision separated without infection. The patient's post-operative history was without further complication for some days. The temperature and pulse remaining normal. On the sixteenth day after operation the temperature was normal and pulse 90. Blood examination showed hæmoglobin 65 per cent., red cells 3,110,500, leucocytes 9,500. Polymorphonuclear 80 per cent., small lymphocytes 10 per cent., large lymphocytes 6 per cent., transitional 3 per cent., eosinophiles 1 per cent.

On the morning of the seventeenth day she was seized with excruciating pain over the appendix. At first we thought that this might be due to oncoming labor but an examination failed to confirm this opinion. At no time during the day did she have any signs of labor. The temperature rose to 100⅘ and pulse to 134, and respirations to 34. A blood examination showed the following: leucocytes 24,000; polymorphonuclear 90 per cent., small lymphocytes 7 per cent.; large lymphocytes 1 per cent.; transitional 1 per cent.; eosinophiles 1 per cent.

A diagnosis of acute appendicitis was made but the husband of the patient could not be located to obtain consent to reopen the abdomen. The patient refused operation herself. Early in the evening of the same day labor began

and was terminated in two hours. A seven months' fœtus was delivered which lived four hours. The uterus failed to contract and the patient had a severe post-partum hæmorrhage which was controlled by packing with gauze. After the labor the patient's condition was extremely bad and we did not feel justified in attempting any further surgical interference though by this time we had obtained full consent to do whatever was thought best for the patient. The following day the patient was still desperately ill and we decided again not to interfere. On the third day there was a localized mass in the appendiceal region apparent in close relationship with the uterus. The patient's condition was better and the pulse and temperature showed a tendency to fall. As the process was apparently localizing itself it was decided to wait until the patient's condition would justify an abdominal section. On this day the hæmoglobin was 60 per cent.; red cells 3,200,000; leucocytes 20,000; polymorphonuclear 89 per cent.; small lymphocytes 6 per cent.; large lymphocytes 2 per cent.; transitional 1.5 per cent.; eosinophiles 1.5 per cent. Five days later the mass seemed more superficial and closely attached to the uterus. The incision as has been noted had separated and a grooved director was run underneath the fascia until it reached the outer margin of the mass when it was plunged into the abscess cavity and a large quantity of pus escaped. With the escape of pus the temperature and pulse fell to normal and the patient has made a good recovery. Of course we are not prepared to say in the light of previous drainage that this was an attack of appendicitis but the location of the lesion and the history of acute onset after sixteen days of afrebile convalescence leads us to strongly suspect the correctness of the inference. Pathologic report of mass showed it to be inflammatory in character.

113 South Twentieth Street.

MEDICO-LEGAL.

By E. S. McKEE, M.D.,
Associate Editor New York Medico-Legal Journal.
CINCINNATI, OHIO.

POST-MORTEM RIGHTS.

A BROAD and sane verdict has been recently rendered by the Court of Appeals of Georgia. It had reference to the rights of the physician-in-charge to hold a post-mortem in case of death in which he is seriously in doubt as to its cause. The court held that the plaintiff's contention that the body of his wife had been unlawfully mutilated to gratify professional curiosity was unjustified, and that, while the husband was entitled to the body, the laws of health, duly enacted in order that the living might be protected, are salutary and ought to be observed. Plaintiff's wife was taken ill and was placed by her family doctor in the free ward of a hospital where she was entrusted to the care of the hospital surgeon. In a short time she died. It was necessary to know the cause of death in order to make out a burial certificate. The hospital

surgeon made a slight incision in the side of the corpse, which was sewed up and was not perceptible. Common sense suggests to a few friends of deceased patients that it was a matter of importance to them as well as to science to be sure as to exactly what killed their parent or friend. Some few are not only willing but anxious that the interests of science should be served by not only a post-mortem on their friends but also themselves, when dead. The majority, however, in this land of the free, object and some dead-beats will sue for imaginary infringements of their feelings. A few yield to that broader conception, the common good. Contrast the state of affairs in Austria where practically every person who dies is post-mortemed, without any question, or interference from the relatives. An autopsy there is taken for granted while in this country it must often, if taken at all, be by force, strategy or persuasion. If more courts were as broadly humane as that of Georgia, pathology would grow in our country as it has in Austria. Our vital statistics would then be more complete and accurate than at present possible. If a patient and his friends have confidence enough in a physician to employ him in a serious illness and to stick to him till the end why should this confidence not continue when he advises an autopsy?

THE MARRIAGE STATE REGULATED BY THE STATE.

It seems surely settled that about eighty per cent. of the men of our time have or have had the gonorrhœa. This being without denial it can not be denied that it is time that the government of this great country steps in and protects its children. It is confessed that this condition is responsible for a large per cent. of the childless marriages and sightless children. This government of the people, for the people and by the people can not continue unless the ravages of this diplococcus of Neisser be not checked. The State of Pennsylvania has pending before its legislature a law the vital section of which provides that the clerk of the court "shall not issue to any person a marriage license until each of the parties applying therefor shall severally present to the clerk a certificate, under oath of affirmation from a medical doctor, duly authorized to practice medicine under the laws of the Commonwealth, setting forth that he, the said medical doctor, does declare, to the best of his knowledge and belief the applicants for the license are not afflicted with pulmonary tuberculosis, epilepsy, insanity, imbecility, idiocy or other hereditary diseases as such would affect the other contracting party to the marriage or offspring therefrom." It is very much to be regretted that gonorrhœa was not included in this list that twenty per cent. of the blindness and seventy per cent. of the gynæcological operations might be prevented. No disease to which flesh is heir to is so readily transmitted in the conjugal bed as this spoiler of conjugal happiness nor is there any which is hidden more vigilantly.

THE CENSORSHIP OF SEX LITERATURE.

Mr. Theodore Schroeder of the New York bar, has an article of much value in the March, 1909, issue of the *Medical Council,* of Philadelphia. He says that physicians have sat by unconcerned while political theologasters have

developed a censorship over sex discussions which by its compulsory ignorance and theological misrepresentation of a most vital function is filling our insane asylums to overflowing and even keeping the American physician in relative ignorance. Indeed you have been so indifferent to this censorship that you haven't discovered of what it has deprived you. We have upon Federal and State statute books penal laws against "obscene and indecent literature," but no criteria of "obscenity or indecency," are furnished. He then proceeds to give, by examples, what may and has been suppressed adding that much which has been suppressed is done so by merely threatening suppression as the threatened publishers are only too glad to withdraw their publications and keep the matter quiet. Mr. Schroeder, after relating a number of instances where valuable writings were suppressed on the say-so of some post office clerk or some scientist was fined on the interpretation of a jury of farmers, asks, What are you physicians going to do about it? A bill has been introduced into the United States Congress which adds the term "filth" to the other adjectives. Who is to be the judge as to what is filth in literature and art? Is it not about time that the medical profession asserts itself in resisting these aggressions of moral sentimentalism. Isn't it about time that you wrote your United States Senator a protest against the passage of this new amendment to the postal laws? Isn't it about time that you have some discussion on these things at the meeting of your medical societies? If not, then it must be that you are unwilling to assume the responsibility of becoming the sane and scientific leaders which your profession should qualify you for, and you are willing to let matters drift along under the pernicious influences of those who deal only in the physiology of sex.

THE BIBLE JUDICIALLY DECLARED OBSCENE.

That distinguished eccentric, George Francis Train, in 1872, was arrested for circulating obscene literature. This proved to consist of quotations from the Scriptures. Train and his attorneys sought a decision on the obscenity of the matter maintaining that it was not so. The prosecutor in his perplexity and in spite of the protest of the defendant insisted that Train was insane. The court refused to discharge the prisoner as one not having circulated obscene literature and directed the jury against their own judgment to find him not guilty on the ground of insanity, thus, by necessary implication, deciding the Bible to be criminally insane. Upon writ of habeas corpus Train was adjudged insane and discharged. Thus an expressed decision on the obscenity of the Bible was avoided though the inference was of its criminality. A Cleveland paper was later seized and destroyed for publishing this same quotation. Here then was a direct adjudication that parts of the Bible are indecent and therefore unmailable. John B. Wise, of Clay Center, Kansas, in 1895, was arrested and fined for sending obscene literature through the mails which again consisted wholly of quotations from the Bible. On precedents already established juries of irreligious men could wholly suppress the circulation of the Bible. In some States the existing laws would authorize its seizure and destruction. This is possible because the maxim, now scientifically demonstrable is not

heeded, viz: to the pure all things are pure. Mr. Theodore S. Schroeder of the New York bar, who has written on "Censorship of Sex Literature," denounces this law because under it may be destroyed books containing records of human folly and error from which we may learn valuable lessons for avoiding the blight from violating nature's laws. Under our present statutes, says Schroeder from whose paper in the *Medical Council* so much of this is obtained, some of the writings of the greatest historians and literary masterpieces have been suppressed. Unknown injury has been done to science by the suppression of books of which the public has never heard, the authors being too sensitive to let the matter become public.

OBSERVATION ON THE EFFECT OF TASTELESS COLD STORAGE CHICKEN USED AS FOOD.[1]

By EPHRAIM CUTTER, M.D.

To all students of many years new phenomena happen. After fifty-five years of urinoscopy the following is a new experience, and the writer would like to know if it is not new to others. A patient I have watched carefully, as he had once in a while epithelia, caudate, acute, and right-angled, double nucleated, etc., which, as his family is cancerous, the writer has deemed a valuable sign. Said patient dined out the other day, and partook of tasteless stewed chicken, long in cold storage. The next day he did not feel well and urinoscopy revealed much albumin and many cells of the cancer type (mobtiss),[2] but intensely typical in all respects, and more so than usual. Quite a number had two, some three, some four and some five nuclei well marked. But the next day the mobtiss were all gone, save albumin. Possibly it may be exceptional. This is what I want to know, and thus I ask the readers of this medical journal to tell if they have known like cases; for, if true, it goes to show the dangers of cold storage chickens to some people.

West Falmouth, Mass.,
April 24, 1909.

Editorial

STROPHANTHUS.

The natural habitat of strophanthus is Africa and the varieties official and recognized to possess medicinal principles are strophanthus kombé, strophanthus hispidus and strophanthus gratus. The kombé variety is probably the

1 *Op.* 170, Series, July, 1905.

2 Mobtiss is my new name for cancer. See Journal American Association, May 22, 1909, page 1725, "Early Diagnosis of Gastric Carcinoma from Cytologic Examination of the Rinsing Water," Dr. G. Marim, from Archiv. für Verdaüungs Krankheiten, Berlin.

most plentiful, while the hispidus variety is quite extensively cultivated in the German colony of Togo.

Its chief active principle is strophanthin, a glucoside obtained from the seed, which is easily decomposed by mineral acids, precipitated by tannic acid, readily soluble in water and alcohol, but almost insoluble in ether and chloroform. A bright green color is produced when a portion of this glucoside is brought in contact with sulphuric acid containing a trace of ferric chloride.

There is probably no other drug in the domain of medicine that has such a variability in physiological activity as have the different specimens of strophanthus. It is claimed that in order to obtain a reliable preparation of this drug the seeds should be bought in the follicles and tested. An assay based on the amount of extractives contained in a given tincture of strophanthus is of little value since the extractives consist largely of chlorophyl and other inert substances. Hence the poor results so often observed in the administration of strophanthus. The writer knows of a popular and successful physician who administered a half drachm of the tincture of strophanthus four times daily to a patient suffering from mitral regurgitation with loss of compensation without any appreciable results. Consequently, he condemned strophanthus as possessing any medicinal value in heart diseases. Of course he has had a preparation that possessed very little of the active principle, strophanthin. Not only is the crude drug often found mixed with other vegetable substances, but the strophanthin supplied by different manufacturers is also unreliable and one sample has been found to be ninety times as strong as another. Owing to the extreme toxicity of strophanthin, caution should be exercised in prescribing it and to secure a standard preparation.

Locally it acts as an anæsthetic and irritant.

Internally it is a bitter tonic, promoting the appetite and digestion, if given in small doses. Its principle use is a cardiac tonic, resembling digitalis. Strophanthus slows the heart-beat, lengthens the intervals between the contractions and increases the energy of the muscular tissue. Some effect is also seen upon the arteries, but the rise of blood-pressure is due principally to the increased force of the cardiac contractions. In cases poisoned by the use of this drug the heart's action is arrested in diastole, and there is marked irritation of the gastro-intestinal tract and kidneys.

In medicinal doses strophanthus acts quicker than digitalis. It does not disturb the gastro-intestinal canal, and does not possess an accumulative action. But on the other hand, the good effects are not so lasting as are those of digitalis. It also has a quieting effect upon the brain and medulla and has some diuretic power.

Strophanthus possesses distinct advantages over digitalis and it is equally certain that it is free from the greatest danger which the use of digitalis entails —namely, vasoconstriction. With a wider and more rapid dissemination of knowledge, concerning this drug and its therapy, we hope that within a comparatively few years we may have strophanthus used as carefully as digitalis to-day.

Materia Medica and Therapeutics

ALOPECIA OF DENTAL ORIGIN.

Dr. Rousseau-Decelle gives the following characteristics of alopecia, ascribed first by Jacquet to dental troubles. It often follows a painful attack of trigeminal neuralgia caused by the teeth (eighteen out of twenty-five cases). This attack may precede the depilation by two or three months, but more commonly it occurs in the preceding month. 2. It occurs on the same side as the trigeminal attack, more frequently on the left side, because dental lesions are more common on the left side. 3. It appears by preference in certain predisposed zones, as if there was a relation between the seat of the dental irritation and the seat of the initial area of alopecia. Thus in sixteen cases of trouble with the lower wisdom tooth the author found alopecia localized on the same side of the nucha in fourteen. 4. It follows alveolar and gingival irritation rather than dental irritation proper. Thus in twenty-five cases of dental alopecia the author traced the cause in three cases to inflammation of the dental pulp, in the remaining twenty-two to troubles outside the teeth. These irritations seem to act differently upon the trigeminus. 5. It is accompanied by certain phenomena, such as hyperæsthesia, erythrosis, hyperthermia, adenopathy, lymphangitis, and œdema, grouped by Jacquet under the name of the dental syndrome. 6. The areas are generally small in size and few in number. 7. The prognosis is good. 8. The cure is rapid and often immediate after dental intervention alone. (Presse Médicale, February 6, 1909.)

AMŒBIC DYSENTERY.

Dr. Granville S. Hanes, Louisville, Ky., remarks that it was recently believed that amœbic dysentery was purely a tropical disease or acquired only in those regions. A theory has been suggested, that cases occurring in our climate are due to eating uncooked tropical fruits on which the amœba had been imported. There is no scientific evidence in the support of this theory and cases occur in which its possibility can be excluded. He, and his partner Dr. Mathews, have had half a dozen such cases under their care in the past few months, two of which are reported. In both of these the evidence was strongly in favor of impure drinking water as the cause. He thinks that amœbas are indigenous in this country, but the less favorable environment than in the tropics, render them less in number and virulence, and the disease caused by them is consequently rarer and less severe. The diagnosis is always made with the microscope and he does not rely on the examinations of the dejections alone, but inverts the patient and scrapes the ulcers with a sharp curette. In this way the amœbas will be observed at once if they can be found at all. It may be difficult to find motile amœbas while the patient is under actual treatment, and in such cases he discontinues the treatment for a few days and they appear again. Warming the stage is also an important measure in detecting them under the microscope. He is convinced that there are large numbers of people in this country suffering from unrecognized amœbic dysentery, cancer or tuberculosis being the most usual diagnosis after the patient

becomes emaciated. No one plan of treatment has been found universally successful and relapses are always to be anticipated as possible. When the interval, however, is a number of years, Hanes thinks we should consider reinfection as the possible cause. There is nothing that will prevent possible reinfection as long as the patient's environment is unchanged. Too restricted diet he thinks is a great mistake in these cases, but rest is an important feature in the treatment of the disease. Of remedies given internally, ipecacuanha is the most to be relied on. It does not perhaps kill the amœba but it destroys its pathogenic power. A large number of parasiticide injections have been employed but none is universally effective. Quinine has been largely used but it is sometimes an absolute failure. Hanes has employed coal oil, knowing its generally parasiticidal effects. He at first employed it with great caution, but latterly has come to use it with boldness, and he now has no hesitancy in injecting a quart or more of undiluted coal oil through the rectum or, in the cases of appendicostomy, through the appendix, the patient being then requested to keep the recumbent posture for half an hour or longer. He is not prepared to make definite statements as to the influence of oil on the amœbas, but expects to be able to do so in the future. All the patients in whom he has employed this treatment except two have responded beautifully. In the two cases mentioned he was not allowed to carry out the method in detail, and he has advised appendicostomy and will keep the patients under observation and report later on the results. (Journal American Medical Association, June 19.)

CHLOROFORM IN HEMOPTYSIS.

Dr. Joseph B. Fish, Edgewater, Colo., after referring to a previous paper on the successful use of chloroform in pulmonary hæmorrhage (Journal American Medical Association, March 13, 1909, page 883), says that he has continued his experiments and now practices this treatment alone in such cases. The effect of chloroform on the circulation is chiefly to decompress the vasomotor system, causing an extraordinary fall of blood-pressure. Complete vascular relaxation follows and the patient, so to speak, is bled into his own vessels. There is also some cardiac enfeeblement and dilatation, which also contribute to lowering the blood-pressure. Chloroform has also a depressant effect on the respiration, and, as it produces the coagulation of the blood *in vitro,* it is possible that some direct contact with the bleeding point by the vapor may also have some effect. He describes his mode of administration of from 2 to 4 c.c. of chloroform on an ordinary inhaler or wad of cotton held near the nostrils of the patient. The hæmorrhage will cease within 5 or 10 minutes, and during the following 24 or 48 hours the patient will be bringing up blood clots. The inhalation of from 15 to 20 drops every hour is continued for a few days and ammonium chlorid, with small doses of codein, is given internally every 4 hours to expel the retained secretions and prevent excessive coughing. It is a good plan, he says, also to give a teaspoonful of magnesium sulphate to keep the bowels free. In the limited number of cases in which he has used this treatment the results have been all that could be desired, and he recommends it to further trial by others. (Journal American Medical Association, June 12th.)

COPPER SUBACETATE INHALATION IN THE TREATMENT OF TUBERCULOSIS.

Billard noticed improvement in the condition of two consumptives after they obtained work in a factory producing

copper subacetate. They were employed in packing the verdigris, and soon began to improve and had no further hæmorrhages from the lungs, while they regained appetite and weight. The verdigris dust is thick in some of the rooms, but none of the employés seem to notice it, and no coughing is heard in the factory. These and other facts observed led Billard to attribute healing power to the verdigris dust inhaled and he decided to use it in treatment. He has been treating thirty patients systematically in this way since last August and with encouraging results. He orders the patient to buy about 2 pounds of pulverized copper subacetate, as chemically pure as possible. It is poured into a basin and some is taken up on a card and poured back into the basin from a height; this process is repeated again and again and the dust is inhaled as it rises. The verdigris ceases to give off dust in about two weeks, and it is ground over again. Half an hour morning and evening is the general rule for this treatment. In every case in which the patients followed it the cough and expectoration subsided or ceased, while the patients gained in weight and strength and the stethoscope showed a retrogression of the lesions. The only exceptions to this were in the acute cases with fever; these patients did not seem to be benefited by the treatment. (Presse Médicale, Paris, April, 1909.)

FERRATIN.

In 1894 Schmiedeberg prepared a substance from pig's liver by maceration with boiling water and subsequent precipitation with tartaric acid, which he designated ferratin. It contained 6 per cent. of iron in organic combination, unaffected by ammonium sulphide. No compound of a similar nature had ever been prepared from liver before, nor, so far as Schmiedeberg knew, from any other organ of the body. Later on, by heating white of egg with an alkali in the presence of an iron salt he obtained ferri-albuminic acid, which he holds to be identical with the original ferratin. Moreover, he considers from the mode of preparation that ferratin is the form into which iron must be converted before absorption into the system. If his contention were true it would raise ferratin to a position of extreme importance in the treatment of anæmia. Experiments carried out by Salkowski did not indicate that ferratin was in any way superior, but slightly inferior, to paranucleinate of iron, a substance introduced by Salkowski himself (Zeit. für Physiol. Chemie, Bd. 84, iv, 1909). Moreover, no subsequent observer had obtained any compound with such a high percentage of iron from the liver. Hammarsten prepared a nucleoproteid from the pancreas by a method similar to Schmiedeberg's for making ferratin, but substituting hydrochloric for tartaric acid. In 1902 Beccari prepared ferratin by Schmiedeberg's method, and found that it only contained 1.67 per cent. of iron (0.52 per cent. if made from ox liver). Scaffidi also found a nucleoproteid in the liver of the dog, containing 0.18 to 0.44 per cent. of iron; he also obtained a nucleoproteid from the liver of the pig, containing 1.93 per cent. of iron, rising to 3.59 per cent. after repeated washing. Salkowski repeated these experiments on the pig's liver, and obtained a nucleoproteid with a fairly constant percentage of phosphorus in the case of each liver examined, but the amount of iron varied considerably. Without prejudice to the value of ferratin in therapeutics, he agrees with Beccari and Scaffidi that the substance prepared by Schmiedeberg from pig's

liver was not a new variety of compound or a ferri-albuminic acid, but a nucleoproteid with a variable percentage of iron, and that the ferri-albuminic acid prepared from white of egg has no connection with the iron-containing proteid in the liver substance. Scaffidi's results are published in the same number of the journal. (British Medical, May 1. '09.)

HYDROCYANATE OF IRON.

This preparation, which is advertised as being "unexcelled as a remedy for epilepsy, hysteria," etc., was subjected to analysis, and the results appear in (The Journal American Medical Association, June 19th.) The term "hydrocyanate of iron" is an unfamiliar one and was to be found in any available reference work on chemistry. Thinking the term might have been loosely applied to ferrocyanid of iron, or Prussian blue (a compound once suggested for epilepsy, but long ago considered useless), the manufacturers were asked if such were the case. They replied that their preparation was "not Prussian blue in any sense of the word," and added that "Prussian blue has no curative properties as applied to all forms of epilepsy." The inference drawn from the company's literature was that "hydrocyanate of iron" is a definite chemical compound. The preparation was then analyzed and "from the analysis it is concluded that 'hydrocyanate of iron (Tilden)' is essentially a mixture of approximately equal parts of talc and Prussian blue, containing traces of organic matter having the general properties of alkaloids."

MUSTARD PACKS IN BRONCHITIS.

Dr. A. A. Herzfeld, New York, discusses the excellent properties of mustard as a counter-irritant in the treatment of capillary bronchitis and bronchopneumonia in infants and children. He and his colleagues have been using a method devised by him for the past thirteen years with great advantage. His method is as follows: Two hundred and fifty cubic centimeters of water and 250 cubic centimeters of alcohol are mixed in a large bowl; to this are added from 25 to 50 cubic centimeters, according to the severity of the case, of freshly prepared spirit of mustard. The spirit of mustard is prepared according to the German Pharmacopœia, as follows: Oil of mustard 1 part, pure alcohol 49 parts. A large piece of flannel is moistened with the mixture and wrapped around the child from the neck to the knees. The child is then enveloped in a dry sheet, and the pack is left on until the skin is a bright red, usually in from fifteen to thirty minutes. The child is then taken out and wrapped, and left for another half hour in a pack wet with 1 part alcohol and 2 parts water. At the end of this time the child is wrapped in a dry sheet. Usually one pack causes marked improvement, but relapses are frequent, and it may need renewal. Once in twenty-four hours is enough, unless the indications are unavoidable. The physician should apply the first pack himself, to determine the strength needed, and to instruct the parents or nurse. Dr. Herzfeld sums up the advantages of the method as follows: (1) It is surprisingly rapid in effect. (2) Its light weight does not materially embarrass respiration. (3) It can be applied without removing the enfeebled patient from the bed. (4) It is inexpensive. (5) It is clean. (Journal of the American Medical Association, January 9, 1909.)

NEW NOSES IN TWENTY MINUTES, NEW PROCESS FOR.

Dr. H. R. Allen, Indianapolis, Ind., gives the following method:—

1. Make a plaster-of-Paris cast or reproduction of the noseless face.

2. Model a half-dozen or more different noses that are appropriate to the other features of the face.

3. If desirable, model other features of the face that need improvement.

4. Construct a hollow metallic bridge or supporting frame which will reproduce the shape of the nose selected when placed beneath the skin.

5. *Operation.*—Pull the upper lip forward, and then about one centimeter below the gingivolabial fold make an incision about one-third the thickness of the lip and running parallel with the gum margins of the upper teeth. Let this incision terminate about the first molar tooth. Then complete the incision vertically and dissect the soft tissues of the nose and face free from the skull, care being taken not to injure the nerves coming out from the infra-orbital foramen nor the tear ducts.

6. Then place the nostril hook in the nostrils and pass the points around so that they come out underneath the upper lip.

7. Make traction upward and outward upon the hook and the entire field for supporting the nose frame comes into plain view.

8. Stretch the nasal tissues forward and prepare the foundation for the bridge or metallic support for the new nose.

9. Place the new hollow-metallic bridge under the lip where it is to rest permanently.

10. Suture the original wound.

In the event there is no soft tissues of the nose and, consequently, nothing under which to place a metallic bridge the constructive principles differ, inasmuch as it is necessary to dissect up the skin on each side of the nasal orifice and draw the skin together and suture it in the median line. Make periosteal openings. Later on, when a firm union is established, the regular gingivolabial incision is made and the nose-construction operation proceeds as described. (The Lancet-Clinic, May 8, 1909.)

OBESITY, PRINCIPLES FOR TREATMENT OF.

Dr. Kisch believes that the fatter the organism the lesser amount of albumin required in proportion. Obesity resulting from too hearty food a man weighing 200 pounds can do well on 1,100 calories, remembering that 1 Gm. of albumin, as also of carbohydrates, produces 4.1 calories and 1 Gm. of fat 9.1 calories. Kisch does not believe in overloading such patients with bulky salads, apples, potatoes and the like on account of the tendency to dyspepsia. Systematic exercise is important for this form of obesity—Mastfettleibigkeit. The obesity resulting from constitutional causes, congenital or acquired in consequence of some pathologic process, requires different treatment. The aim here should be to improve the blood production and influence the cellular processes. Iron is useful and the diet must be regulated to supply plenty of albumin, while avoiding substances that produce fat. The diet for twenty-four hours should average for the ordinary patient 200 Gm. albumin, 12 Gm. fat and 100 Gm. carbohydrates. The intake of fluid should be regulated by the amount of diuresis. Exercise should be very cautiously taken, in order not to fatigue the easily exhausted heart. (Therapie der Gegenwart, April, 1909.)

PHOSPHORUS AS BRAIN FOOD.

Dr. W. Koch, Chicago, has investigated the phosphorus content of the brain in health and disease and finds that even in conditions of extreme exhaustion, the brain is plentifully supplied, not only with phosphorus, but also with its special form of phosphorus, namely, lecithin. He concludes, therefore, that there is no evidence of any need to supply phosphorus to the brain in such conditions. The actual amount lost in the exhaustion of general paralysis can not, of course, be replaced on account of the inability of the central nervous system to regenerate. The phosphorus required for the growth of the brain is amply supplied by the phosphorus of our daily diet. If desired, the addition of phosphorus-rich foods, such as eggs, sweetbreads, liver and some meats, can be made and meet further requirements, and will do far better in this way than dosing with the various phosphorus-containing drugs in commercial use. The use of such foods, however, is limited by their richness and their tendency, on account of their fat contents, to disturb gastric digestion. So far as the nervous system is concerned, the addition to the diet of commercial phosphorus compounds, such as hypophosphites, glycerophosphite, phytin, lecithin, etc., is to be discouraged, since there is no conclusive evidence that they affect the growth of the brain, and the amount usually recommended to be thus taken would be a very insignificant addition to that supplied by our daily food. (Journal American Medical Association, May 1st.)

POKEBERRY POISONING.

Dr. Lester reports a case of a boy, age 12 years, whom he found completely relaxed. Respiration was very shallow and quiet. The pulse was soft, full and slow, about 60, regular and not the pulse of collapse. The boy salivated freely from his mouth, there being a constant raising of thick, frothy saliva. His reflexes were gone, the eye bearing the touch of finger without any lid contraction. In the absence of any history of poisoning, Lester administered stimulants, and with the use of warm water obtained free emesis; the vomitus determined the nature of the patient's seizure, being largely composed of the pokeberries. The use of liberal doses of castor oil at short intervals was persisted in for some hours, the patient becoming gradually better, until consciousness was regained nine and one-half hours after the initial attack. The whole picture was one of motor relaxation. There was even evidence of this in the widely open pupil, hanging jaw, tongue settled back in the pharynx, and inability to swallow, for an hour. Yawning and stretching were evident as the patient became better, but no sweating of body or tremor was present. (New York State Journal of Medicine, April, 1909.)

PROTARGOL IN THE TREATMENT OF OPHTHALMIA NEONATORUM.

Motais (Bull. de l'Acad. de Méd., May 4, 1909), discussing the treatment of ophthalmia neonatorum, pays tribute to the service rendered by nitrate of silver, which has been so long used; he, however, considers it dangerous when ulceration of the cornea is present. He considers that great credit is due to Darier for his researches in the organic compounds of silver—namely, argyrol, collargol and protargol, the later of which he considers by far the most valuable. The method he adopts is as follows: The lids are washed frequently with a lukewarm solution of weak permanganate of potash 25 centigrams to 1,000. If the

secretion causes the lids to adhere they should be smeared with iodoform ointment. Every six hours he uses 2 drops of a 20-per-cent. solution of protargol, no matter whether a corneal ulcer be present or not; this never does the cornea any damage. In severe cases with abundant secretion, and especially if the cornea is affected, he uses the protargol drops every three hours, and he considers that accidental injury of the cornea is far less liable to occur than if the lids be painted. If this treatment is regularly carried out the secretion is diminished from the first day, and in three, or at most four, days there is but little discharge. The protargol is used at half its strength for several days after the case is apparently cured. Should recurrence take place, which he has never seen if the treatment is fully carried out, he reverts to that first recommended. If a corneal ulcer is present it quickly heals. Atropin is also recommended in order to avoid the occurrence of posterior synechiæ. He claims for this treatment that it is simple, without danger, and it gives the best results. He describes ten typical cases. (British Medical, May 22, '09.)

RADIUM, ITS THERAPEUTIC APPLICATIONS.

Drs. Wickham and Degrais in studying the influence of radium on certain tumors of the breast, especially carcinomata conclude as follows:—

The technical advantages of radium are due to

1. The ease in application, and its painless character allows the apparatus to be left in position for a great length of time without inconvenience to the patient in his daily occupation.

2. The use of lead filtration screens reduces the radiations in such proportions that their action on the neoplasmic cells is slow, and the patient is not exposed to any harmful irritation of the tissues.

3. The smallness in quantity of the radiations can be compensated for, not only by the long duration of each application of the radium, but also by the method of "crossed fire," which increases the intensity of the action of the radiations in the deeper tissues.

4. These radiations, being composed of rays of extreme penetrating power only, have little effect on the cutaneous surface, but exert their special action at a depth.

The practical conclusion from the above considerations is that radium treatment is capable of rendering different kinds of service in the treatment of certain cancers of the breast:—

1. Radium can cause the retrogression of a cancer of the breast to such a degree as to bring about all the appearance of a cure.

2. Radium can transform an inoperable cancer of the breast into an operable one.

3. Radium can act on recurrences of small dimensions occurring after operation on cancer of the breast.

4. Radium can act on some affected lymphatic glands if they are not too much involved.

5. It can relieve the pain, and diminish for a time the hæmorrhage and secretions from cancerous ulcerations, and thus prolong life.

6. It can also be used after surgical operation as a preventive measure.

These conclusions are not of universal application, and are limited to cases in which the growth is sufficiently localized and of small extent; the benefits must not be exaggerated, and a great drawback in practice is the considerable quantity of radium necessary for each treatment. (British Medical, May 22, '09.)

SCISSORS-MAGNET EXTRACTION OF FOREIGN BODIES FROM THE EYEBALL.

Dr. E. Jackson, Denver, points out that in a considerable number of cases the electromagnet, whatever its form and however used, fails to remove pieces of iron capable of magnetic attraction from the eyeball on account of their being embedded too firmly in recent exudate or organized tissue. In such cases he thinks we have a resource in the use of scissors attached to the magnet, and he reports two cases in which this method was successfully used. Somewhat similar methods with a knife or strabismus hook attached to the magnet have been reported by Connor and Lang, but this is different from the use of the magnet force to direct a cutting instrument to the foreign body as used by him. The special technique of introducing the scissors and a description of the instrument is also given. The article is illustrated. (Journal American Medical Association, June 19th.)

SEVERE HÆMORRHAGE, SUTURE OF THE LUNG FOR.

Dr. Lotsch reports two cases in which suture of the lung was performed for bleeding which was very dangerous. The first patient was a workman, aged 26, who was stabbed with a knife in the left side of the back. The extreme pallor of the face, etc., the soft, small, rapid pulse, and the physical signs pointed to bleeding into the left pleural cavity. The chest was opened in Brauer's plus pressure chamber, and on increasing the pressure to 17 centimeters about 1½ litres of blood escaped. The wound in the lung was found and closed with catgut sutures. Saline infusion was given after the operation, and the pulse improved. The recovery was disturbed by a purulent effusion into the pleura, which proved to be sterile, while fibrolysin injections were given to prevent contraction of the pleural adhesions during healing of the empyema. He was discharged well. The second patient attempted to commit suicide by shooting himself twice through the chest. The clinical diagnosis was wound of the left lung, hæmopneumothorax, and possibly wound in the heart. A large quantity of blood was evacuated from the pleura at the operation, and, after the field of operation was clear, the two shot wounds were found and sutured. This patient also got an empyema, but with suitable treatment complete healing took place, and the man was almost well when discharged. The shots were not found at the operation, but were seen after Roentgen examination. In discussing the cases Lotsch justifies his procedure by showing that over 40 per cent. of such cases die if treated expectantly. The difficult question to decide is when is a pulmonary hæmorrhage abundant. He was guided by the degree of anemia. He discusses the technique of the operation, and also adds a few words on the treatment of secondary empyema, which appears to be common after intrathoracic operations. (Muench. med. Woch., January 19, 1909.)

STYPTOL IN THE TREATMENT OF DYSMENORRHŒA AND UTERINE HÆMORRHAGES.

Dr. F. Girardi, of Cervinora, has used styptol in menorrhagia as well as in metrorrhagia, and reports that its action was to be relied upon. This drug diminished the bleeding in every instance, even in those cases in which hamamelis and hydrastis had been of no effect. The analgesic action of styptol

was especially noticeable. The preparation also proved beneficial in cases that had been operated upon. For example, one year after a curettage, styptol promptly diminished both pain and hæmorrhage when these symptoms reappeared. This drug was also found valuable in dysmenorrhœa, as it not only diminishes the bleeding, but relieves the pain that is wont to appear several days before menstruation. Styptol also has a sedative effect, which is probably due to a diminution of the irritability of the peripheral nerves, especially those of the genito-urinary system. (Riv. internaz. di Clinica e Terapia.)

SUPPURATION OF RENAL PELVIS AND URETERS, TREATMENT OF, BY LAVAGE.

Dr. E. Garceau, Boston, reports a number of cases in which his treatment was attended by marked benefits. The technique of treatment is described in detail. He prefers the Kelly cystoscope, and says that the operation is simple, though some skill is required. The germ usually found is the colon bacillus, but the gonococcus and other germs have also been found. The solution which has given him the most satisfaction is silver nitrate, beginning with 1 to 2000 and gradually increasing in strength. The amount should depend on the condition of the pelvis of the kidney. If there is no dilatation, not more than 8 or 10 cubic centimeters should be given at first; the sensations of the patient will be a good guide in this, as also in regard to the frequency of the injections. The method is seldom required, and care should be taken in selection of cases. As a rule, the patient should be under observation for a considerable time before it is undertaken. Acute pyelitis is not suited to this method. Free drainage of the kidney through the ureter must be secured. The most suitable cases are those of simple chronic suppurative pyelitis without obstruction, but most of these will get well anyhow, unless the germ is a very virulent one. It may be used to cure an inflammation in a hydronephrotic sac as a preliminary to nephropexy, but the kidney should be supported meanwhile by an appropriate apparatus. It should never be permitted in severe pyonephrosis with general systemic infection, and it is not suitable for tuberculous pyelitis or tissue changes tending sclerosis and thickening. The only possible remedy for such chronic cases is nephrectomy. A permanent catheter in the ureter is dangerous, especially with acute infection and general symptoms. Renal lavage is seldom followed by serious, harmful sequels if properly performed in the right sort of a case, but further experience is needed to give the method a definite therapeutic standing. (Journal of the American Medical Association, January 23, 1909.)

SYPHILIS OF THE UPPER RESPIRATORY TRACT, TREATMENT OF.

Dr. Livien discusses the identification of the spirochæta pallida and the detection of specific antibodies in the serum of people infected with syphilis. No serum therapeutic treatment had been found effective. Mercury and iodides remain the chief remedies. He states that mercury is best administered by injection or inunction, and that atoxyl, given in efficient doses, has proved experimentally to produce similar results, but is dangerous to the optic nerve. The diagnosis should be certain before treatment is started. Spirochæta should be found, or time given for the serum-

test, or the appearance of the roseola. In most of the cases where inunctions and injections are employed local treatment is unnecessary. Mercurial plaster should be used to cover chancres on the lips or face. Nosophen is a good dusting-powder, and orthoform may be used in painful cases. Malignant forms of the disease responded best to injections of calomel. When inunctions are used baths of soap and sulphur may be usefully added. The iodides are most useful in the tertiary lesions, but act well in vegetating secondary patches in the nose or throat. Iodism may be removed by daily administration of 15 grains of sulphanilic acid in 7 ounces of water. In sensitive cases iodipin is a useful substitute. (British Medical Journal, February 6, 1909.)

TUBERCULOUS AFFECTIONS OF HIP JOINT, TREATMENT OF.

Dr. König has been investigating the present condition of 568 former patients with a tuberculous hip-joint affection. All but 294 required operative measures, and 202 of this group of 294 non-operative cases have been reinvestigated; 55 of the patients had died of intercurrent affections, and 114 were cured without necessity for aid in walking, in 33 the joint had regained normal function, and 90 had a more or less movable joint. Besides these 114 cases with excellent results, 35 patients still required a cane or crutch, and in 3 cases the condition was bad; in 13 there is still a fistula. In the group of 274 resections, no news could be obtained of 60 patients; of the others, 66 were cured, and in 16 of these cases the result was extremely fine and the patients were able to dance and take long walks. Canes and crutches still have to be used by 43 patients, and 35 still have fistula. As only the severer cases are given operative treatment, he regards these results as extremely favorable. He has done resection of the hip joint in 400 cases, and remarks that his technique seems to be overlooked by other surgeons. The principle is to remove every trace of diseased tissue. The incision and part of the operation is the same as in the old technique, but the operation is much more complete. (Berliner klinische Wochenschrift, March, 1909.)

UTERINE HÆMORRHAGE, TREATMENT OF, WITH SERUM.

Dr. W. Busse has treated ten patients with uterine hæmorrhage resisting previous measures, including curetting by serotherapy. The hæmorrhages became so severe that the general health was affected, and he could not find any anatomic cause for the hæmorrhages. He injected 10 cubic centimeters of human serum subcutaneously. The serum was derived from the blood of healthy patients being treated for displacements, under scopolamin-morphin just before spinal anæsthesia. In every instance the hæmorrhages ceased entirely or became much less severe after one or two days. Menstruation became normal, and the patients felt well. He ascribed the hæmorrhage in these cases to some general hæmorrhagic tendency, probably slight hæmophilia. This serum treatment was applied only when local examination was totally negative. There is probably defective production of thrombokinase, and he would prefer animal serum, if such proved effectual. It is possible, he states, that this serum treatment might be used in controlling hæmorrhage in cases of myoma or tumors of the adnexa. (Zentralbl. für Gynäkologie, February 13, 1909.)

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Department in charge of J. MADISON TAYLOR, A.M., M.D.

CHOLELITHIASIS: GALL-STONE DISEASE.

BY JOHN C. HEMMETER, PH.D., M.D., LL.D.,
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BALTIMORE.

THE principal factor in the formation of gall-stone is a catarrh of the biliary-ducts and gall-bladder, which is traceable in the majority of cases to an infection of the gall-bladder by micro-organisms. Stagnations in the flow of bile favor the development of this catarrh; but there is a second factor, which leads to the formation of gall-stones, to which little reference is made and to which the writer first called attention. It consists mainly of pathological alterations in the chemical composition of the bile. At the bottom of all this is an abnormal intermediate metabolism of the liver. To this view we are inclined because at many operations for gall-stone the gall-bladder itself, as well as the stone, the bile, and the various gall-ducts, were found to be free from bacteria; all cultures were negative.

Naturally it has been asserted that there may be bacteria which require such a culture medium as cannot be imitated outside of the living tissues of the body, and that these may cause gall-stone or inflammation of the biliary apparatus. This is a very far-fetched hypothesis, for there is no doubt that the only bacteria which are here concerned are those which originate from the intestine, and for all the more important intestinal bacteria there has been no difficulty of finding culture media.[1]

In speaking of the direct etiology we must consider everything which could produce stagnation of the bile-flow. Among these we must consider

[1] See Hemmeter, Diseases of the Intestines, Vol. I, article on Bacteria.

compressing clothing, insufficient bodily exercise, dislocation or compression of the bile-ducts by tumors, cicatrices. Among the causes which are little recognized I wish to call attention to one of which I have convinced myself repeatedly at autopsies; that is, enteroptosis, and gastroptosis especially. The displacement of the stomach may cause traction upon the hepato-duodenal ligament. This I have frequently seen at abdominal sections undertaken for gall-stone. Another cause is dislocated or floating kidney. Then, there seems to me to be a form of atony of the musculature of the gall-bladder, which in some way is dependent upon the traction caused by dislocated abdominal viscera in enteroptosis. The tugging upon the nerves may also have an effect in this form of atony of the gall-bladder. The greater frequency of these etiological factors in the female sex explains the observation that gall-stones occur three to five times more frequently in women than in men. They also occur more frequently in old age. Prior to the thirtieth year only two to three per cent., and after the sixtieth year, twenty-five per cent. of the observed gall-stone cases occur.

It is of great importance to bear in mind the great rôle which certain infectious diseases play in the causation of cholelithiasis. As a rule these agents first cause a cholangeitis and cholecystitis, and thereafter the injured mucous membranes of these parts produce altered secretions, and have lessened resistance to the micro-organisms that have invaded these pastures. One-third of my gall-stone cases had a previous history of typhoid fever, and I am inclined to look upon this infection as a very serious cause of gall-stones.

The size of the gall-stones varies from that of a sand grain to that of a hen's egg and larger. Their number may vary from a single one to a thousand. The form is very manifold; they may be round, oval, pear shape, mulberry shape, polygonal. Facetted stones arise by the friction of several concretions which are pressed against each other whilst they are still in a rather soft state. They may be of any color, white, yellow, gray, green, brown, even black; this color depends upon the external stratum of the stone, and need not necessarily represent the color of the interior. Most gall-stones consist of a hard stratified shell containing a soft interior. Generally there is a small hollow space in the center of this interior if it happens to be a perfectly dry stone.

They are mainly composed of bilirubin calcium, 15 to 30 per cent., and cholesterin, 60 to 80 per cent. There may be also a small amount of calcium carbonate, traces of copper and iron, also remnants of disintegrated epithelia and mucus. The pure cholesterin stones, which are white or yellowish, sometimes even transparent, are rare; the calcium carbonate stones are very rare. The material for the formation of the stone is furnished by detached and disintegrated epithelia.

The direct cause of the stone formation, then, is a catarrhal inflammation of the biliary apparatus, due mainly to micro-organisms, but which, in my opinion, can also be due to a pathologic metabolism of the liver. The stones at first consist of soft masses, which become coated with a thin shell. The continued growth is produced by concentric layers of cholesterin

and bilirubin calcium on the outside, but at the same time there may be a progressive infiltration of the hollow space in the center with cholesterin.

The stones are most frequently found in a free state in the gall-bladder; they are very rarely adherent or encapsulated. The gall-bladder is always the seat of a cholecystitis which is partially the cause and partially the result of the gall-stone. Frequently the walls of the gall-bladder are thickened and contracted; the muscular and mucous layers are atrophic. I have seen the walls of a hypoplastic gall-bladder so tightly contracted around a stone as large as a pigeon's egg that it could only be cut away with considerable difficulty. The gall-bladder is rarely dilated. The bile which is contained in the bladder is abnormally rich in mucus and disintegrating epithelial cells. Stones that occur in the cystic and common gall-duct originate in the gall-bladder, but can grow farther in the duct. A most frequent seat for the stones to become lodged in the ducts is the diverticulum of Vater, just in front of the orifice of the common gall-duct. Stones which lodge here and close up the orifice may produce a damming back of the bile into the pancreatic duct and eventually lead to inflammation of the pancreas and consequent fat necrosis. The gall-ducts may become enormously dilated in consequence of stagnation, caused by a stone. It has been observed that small stones, composed of bilirubin calcium, occur in the intra-hepatic bile-channels, and this when the gall-bladder and gall-ducts are normal. Evidently these tiny stones are due to faulty metabolism in the liver itself, and this to my mind constitutes one of the important evidences of the theory that there is a form of cholelithiasis which does not depend upon bacterial infection.

Gall-stones have been found in about one-tenth of all autopsies reported from European and American hospitals. Although this is an extraordinary frequency, it is interesting that the mere presence of gall-stones in the majority of cases causes no symptoms.

When symptoms do occur they are at first very indefinite, general distress and slight pains in the region of the liver, digestive disturbances, and slight icterus, are among the first symptoms and signs; but their dependence upon gall-stones is not always recognized in time. It is very rare that one is able to palpate the gall-bladder in individuals with thin abdominal wall, and it is still rarer that the actual observance of a passed stone in the stool permits the diagnosis in the absence of any preceding symptoms. I should, however, emphasize the following syndrome: If a person who has had an infectious colitis or dysentery or typhoid fever frequently complains of gastralgia two hours or three hours after meals, the clinician should exhaust his diagnostic resourcefulness to ascertain the existence or non-existence of gall-stone.

Characteristic disturbances occur only, then, when a stone has left the gall-bladder and entered the ducts, or after the presence of gall-stones has led to infections and inflammations of the duct. This condition gives rise to the so-called gall-stone colic. Thereby the stone may be evacuated into the intestine, and eventually pass out of the body; but rarely do all the stones pass out in this manner. We may distinguish the condition of the patient

during the attack of gall-stone colic, and secondly, an irregular course of the cholelithiasis.

The direct and immediate cause of the colic is but little understood. It has been supposed that the stones already existing in the gall-bladder may be forced into the duct by concussions of jolting of the body, by a fall, by strong compression of the abdominal muscles, by vomiting, by operations on the other abdominal organs, by the act of labor, by cold, and by dietetic errors. The typical attack is generally preceded by discomfort, nausea, and a slight chill; but the pain may also start without any premonition whatever and continue in aggravated paroxysms until it becomes intolerable. But even in the intervals a dull, boring soreness is always complained of in the center of the liver. From here the pain may radiate to the shoulder, epigastrium, spine, even into the legs. Sensitive patients may become unconscious or pass into a convulsion or delirium; vomiting is a frequent accompaniment. In about one half of these cases there is a pronounced chill followed by an elevation of the body temperature, which has been called the "reflex fever," but which is more correctly to be interpreted as the index of an infection of the biliary passages.

Enlargements of the gall-bladder only occur in one third of the cases, and is a consequence of the cholecystitis. Jaundice is an important indication for the interpretation of this colic, but in my experience it was absent in fifty-five per cent. of all cases of genuine gall-stone colic. The icterus may be observable in the conjunctivæ after twelve hours, and bile pigments may be present in the urine. There may be icterus without mechanical obstruction of the common gall-duct; this is an inflammatory stagnation caused by the invasion of the bile-passages by bacteria; but there may also be icterus due to functional disturbances in the liver cells due to general infection originating from the gall-duct. The duration of this jaundice is very variable; it rarely exceeds the regular attack of colic more than several days.

Even in intense icterus the stools are not always free from bile. If the fæces are sifted through a stool sieve it is sometimes possible to find the stone; but this is not the rule. It is possible that a stone has actually passed and that it has become disintegrated in the intestinal canal. During an attack of colic it would be an error to assume that a stone has always passed the common gall-duct or the cystic duct, for the pain may be caused by the acute cholecystitis; or the stone may have dropped back into the gall-bladder. The use of the stool sieve will be referred to later on.

After a typical attack of colic they cease after several hours as a rule, sometimes, however, only to be resumed with renewed severity; thus an attack may be protracted for several days. If a stone has actually passed then the cessation of pain is abrupt. The pains may be very slight in other cases, or entirely absent in still others, and the passages of a stone only evidenced by transient swelling and sensitiveness of the liver to pressure, or by a very slight icterus. The intensity of the pain is by no means proportionate to the size of the stone; for the irritability and smoothness of the biliary passages, the hardness, shape and configuration of the stone deter-

mine the pain. It is a singular thing that the largest stones pass with little pain or no pain at all, namely, by formation of fistula. I possess a gall-stone which was vomited by one of my patients who rarely complained of abdominal distress. The stone is about as large as a pigeon's egg. It was passed four years ago, and there have been no symptoms since. In rare cases death may result by heart feebleness, collapse or shock, or reflex convulsions during an attack of colic. The number and frequency of the attacks are very variable. It is very rare that a patient has but one attack, for the passage of one stone renders the others movable, and thus we may have groups of attacks that may be repeated at longer or shorter intervals, and may also remain away for several years. In the majority of the cases the progress of a regular attack of colic is a favorable one; but at any time this regular form may pass into the *irregular*.

The irregular manners of progression may be classified under four headings:—

1. Permanent arrest of the flow of bile.
2. Infectious inflammations of the biliary passages (cholangeitis, cholecystitis, abscess of the liver).
3. Ulcerations of the biliary passages, perforation, pericholecystitis.
4. Impermeability of obstruction of the gastro-intestinal canal.

It is evident from a survey of these headings that the irregular courses of cholelithiasis represent or lead to surgical conditions almost exclusively, and accordingly the reader is referred to another part of this work where they are considered from the standpoint of the surgeon.

1. Permanent obstruction to the flow of bile is caused by incarceration of a stone in the ductus choledochus or hepaticus. It is rare that a compression of the common gall-duct is caused by a stone that is wedged in the cystic duct; but strictures and neoplasms that have been caused by gall-stones may also produce the obstruction.

The consequence is a chronic icterus, lasting a very long time, but which is recovered from generally by the passage of a stone through a fistula between the common gall-duct and the duodenum; but sometimes a grave icterus may lead to death. In uncomplicated incarcerations of stone this fatal result is fortunately rare. The evil consequences of a so-called fatal chronic icterus caused by gall-stones are more often due to a carcinoma of the biliary passages. I feel it my duty to emphasize the alarming frequency with which protracted cholelithiasis, that is not operated upon, later on becomes complicated by carcinoma. This is one of the principal reasons why prolonged purely medical, or clinical, treatment by non-operative methods is positively unjustifiable, yes, even criminal.

The conditions mentioned under sections 2 and 3 are described in the surgical portion of this work. I must add that perforation may occur from the gall-bladder outward through the abdominal wall and lead to spontaneous cures. More frequent than this form of perforation are the fistulæ between the bile passages and the intestinal canal. Those between the common gall-duct and the duodenum are the most important. They occur in the neighbor-

hood of the papilla of Vater and resemble the passage of a stone as if it had occurred *per vias naturales.* Perforations into the colon may occur, but those into the stomach and small intestines, into the retroperitoneal tissues, into the portal vein, into the pleura, lungs or urinary passages, and into the vagina are very rare. Perforations into the peritoneum are most dangerous.

Impermeability of the gastro-intestinal canal. It has been observed that dilatation of the stomach was caused by compression of the pylorus by a gall-bladder filled with stones, but this is fortunately rare. More frequent is the obturation ileus caused by obstruction of the intestinal lumen through large stones that have gotten into the intestine through a fistula.

The diagnosis of cholelithiasis is not difficult in typical attacks of colic. It is important to accurately map out the exact localization of the pain. Confusion with intestinal colic, lead, renal and gastric colic, as well as cardialgia may readily occur. Icterus is important for the diagnosis, but, as I have said, it is absent in 55 per cent. of my cases. When very slight attacks of icterus are associated with frequently repeated and painful swelling of the liver, this is very important for the diagnosis. The safest conclusion can, of course, be derived from a demonstration of the stones in the passages. The X-rays or Roentgen rays are of no utility in the demonstration of gall-stone. I have personally placed eight large gall-stones in a row one behind the other and obtained no impression on the plate by Roentgen photography. But the X-rays may be useful when it becomes necessary to differentiate gastric ulcer or gastric carcinoma from gall-stone disease; for, according to my method described in the *Archiv f. Verdauungs Krankheiten,* Berlin, 1906. Ulcers and cancers of the stomach can be made visible and demonstrated by this form of photography.

For the diagnosis of the irregular forms, the previous history of former attacks is of great importance. For all this, see Surgical Section.

For those cases of gall-stone disease which run a regular course, the prognosis is in general favorable; but for those cases which run an irregular course, the prognosis is favorable or unfavorable according to the seriousness of the complications.

Treatment—Prophylaxis:—The patient must avoid all foods which might possibly lead to indigestion, and thereby predisposing to infection of the biliary passages. It is very essential to insist on small meals, because a food which in itself is not harmful may bring on an attack of colic by its bulk. A diet that is rich in fats must be strictly avoided. A diet that gives rise to much gas must be strictly avoided; for instance, pease, beans, lentils, sauerkraut, pies, mayonnaises, salads and raw fruit. It is essential to avoid alcohol in anything exceeding one-half a pint of light Rhine wine per day. It is important that the patient should attend to regular evacuation of the bowels, but the strong purgative mineral waters like Hunyadi Janos and Rubinat Condal must be strictly avoided. These powerful mineral purgative waters do more harm than good. Gall-stone sufferers must avoid all clothing that tends to constrict the abdomen.

Treatment During an Attack of Colic.—The patient must be put to bed

immediately; a hot water bag is to be applied over the liver, and one-fourth grain of morphine is to be injected hypodermically at once. The drinking of small quantities of hot water during the attack, or hot Carlsbad-Sprudel water is to be recommended. When the patient has recovered from his immediate colic attack I recommend to him to continue the use of the hot Carlsbad-Sprudel water morning and evening, one tumbler before breakfast as hot as can be taken; then allow one hour to elapse before taking any food. If a slight chronic icterus continues after an attack of colic, and especially if the liver and gall-bladder regions are sensitive, I advise all patients to continue this Carlsbad treatment for a month. In this period the patient must lie down for three hours twice daily, say from nine to twelve in the morning, and from three to six in the afternoon, and hot cataplasms must be applied to the liver region during this time. During the first hours in the morning he should drink one hundred cubic centimeters of Carlsbad-Sprudel water every fifteen minutes, as hot as can be taken. In this way the patient may drink six to eight hundred cubic centimeters in a day. If the patient cannot tolerate so much, the amount of Carlsbad water taken can be restricted, particularly in the afternoon. During this treatment, the meals are taken at half past seven, one P.M. and seven P.M.

Medicinal Treatment.—Gall-stones cannot be dissolved by any medicines that can be taken by the mouth. All medicines that have hitherto been supposed to have had this power bring about their only apparent and very transient improvement by their anodyne effect. Thus the Durand drops which are composed of one part of turpentine, four parts of ether, twenty to thirty grams of cognac and the yelks of two eggs, act simply as an anodyne. The dose is fifteen to sixty drops. Olive oil, oleate of soda, glycerine, preparations made from bile and bile salts are of doubtful value. But I have seen cases in which the salicylate of soda seems to act as a very effective anodyne, and even reduce the jaundice and size of the liver. We do not know in what way salicylate of soda influences the metabolism of the liver cells, but we do know that it is an intestinal disinfectant to a certain extent, and I have convinced myself that the bactericidal effect of the bile is increased after two days' taking of sixty grains of salicylate of soda in divided doses. These tests were made with the colon and typhoid bacilli. But all this medical treatment should not be continued too long. The dangers from the complications mentioned are too great; especially should the practitioner be cautioned concerning the alarming increase of cancer of the biliary apparatus that is traceable to the effect of gall-stones.

I do not find that gall-stones and acute gastritis, as they present themselves in practice, offer any difficulty in the way of differential diagnosis. The trouble is to diagnose gall-stones from gastric ulcer and membranous colitis. As to the pain of gall-stones, there is too much of the hypothetical about all the speculations on this point. The peritoneum, when inflamed or distended, is always painful. In making a diagnosis from the stools I dilute the fæces and sift them through a Boas or Dudley D. Roberts stool sieve.

Certain cases of gall-stones, although they undoubtedly need operation, are in too exhausted a state to stand it. The metabolic cases where the operation shows no infection of the gall-bladder, require careful dieting, Carlsbad-Sprudel, or Bedford Magnesia water. A case which may have originally been due to disturbed hepatic metabolism may later show infection of the gall-bladder.

I do not use cholagogues. There are no cholagogues except those that do harm; even the bile salts, when so administered, injure the stomach. By the time the cholelithiasis is established it is impossible to prevent catarrhal duodenitis, because this as a rule precedes the catarrh of the biliary apparatus. In treating this condition, I study the fæces and ascertain what foods are not digested, and exclude them, enjoin rest in bed, hot applications to the abdomen, and order a half-pint of hot Carlsbad-Sprudel water at seven A.M. before breakfast and at five P.M. It is, in my opinion, impossible to dissolve the calculi, and any treatment directed toward this end is bad procrastination.

As soon as a diagnosis of gall-stones is made definitely, and the condition of the patient permits it, I recommend surgical treatment, even if the gall-stones are not due to infection but to abnormal liver metabolism; they must be removed. I have nothing to say about the surgical precedure; my surgical friends attend to that part of it. As regards the direct indications for operation all signs are misleading in these cases, but (1) fever, (2) constant and extreme tenderness over the liver, and (3) leucocytosis are the most reliable signs of suppuration. The mortality in those cases which I was obliged to treat medically is much greater than those which I submit to the surgeon, as cancer often supervenes in cases treated medically.

To diet these patients guardedly, examining the fæces carefully, is the first rule. But there are no hard and fast, cast iron dietetic regimes. The rule to follow is to study and find out what agrees the best. After the operation the Carlsbad waters are very effective in preventing recurrence. A recurrence of the stones, gastritis, enteritis and colitis are the commonest complications. The best prophylactic for those who are inclined to gall-stones is Carlsbad-Sprudel or Bedford water, as hot as it can be drunk, and living on such a diet as has proven itself to be best digested according to the methods above referred to.

THE THERAPEUTICS OF PAIN.

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My subject as announced is the treatment of pain, when due to toxæmia I would prefer to make it the therapeutics of pain.

There is an old description of pain as "the prayer of the nerves for good blood." For many purposes this description still holds good. In the light

of modern medicine pain may be due to pressure, to fatigue, or to a toxic irritation of a nerve. The probabilities are that all of these factors usually enter into the production of pain.

Pressure as a factor in pain may be purely mechanical from an outside force or hyperæmic from an inside force. When mechanical, the pain is relieved as soon as the pressure is withdrawn unless the pressure has been maintained long enough to produce secondary hyperæmia or an inflammatory process due to the entrance of micro-organisms into the injured parts. When hyperæmic, the pain usually continues as long as the hyperæmia lasts, and may continue after it has disappeared if the hyperæmia has led to changes in tissues.

Hyperæmia and inflammatory processes may be caused primarily by a mechanical injury or by micro-organic parasitism. The growth of micro-organisms in the tissues sets up hyperæmia and, later on, change in the tissues. When this process goes on in parts which are well supplied with nerves of sensation, pain ensues and continues until the nerve becomes paralyzed or the pressure is relieved.

Pain may also be caused by pressure from deposits of inorganic matter in the sheathes of the nerves. This is the kind of pain which comes from gouty deposits and calcareous changes in blood-vessels.

Another cause of pain is toxins circulating in the blood and irritating the nerve ends. To this kind of pain probably belong all the fugitive pains of the body which one so frequently experiences, a moment here and then there, flying from part to part.

Pain may be due to fatigue when muscles have been used too continuously or excessively. Such is the pain from eye strain and back strain. The mechanism of this kind of pain is probably hyperæmic and traumatic.

Many remedies for pain have been found in our armamentarium. This is quite natural because one of the chief functions of the physician is to relieve suffering. Most of the remedies act by destroying sensation. They have been empirically introduced because they were found to relieve pain. Unfortunately little attention has been paid to the secondary injury which may follow their use.

Most of the drugs are valued for their capacity to relieve pain rather than to remove the cause of pain. Rational therapeutics should really be concerned first with the removal of the cause of the pain and second with the alleviation of the suffering. In administering drugs, moreover, we should be quite sure that we are not doing a secondary injury which in the end is, perhaps, a more serious matter to the patient than is the pain from which we are trying to relieve him. In every case the first thing is removal of both the mechanical and the toxic causes of the pain.

When the mechanical cause of the pain can be promptly removed, removal of such cause is all that is necessary. Where the pressure, however, is due to a deposit of some kind, to hyperæmia or to changes in the tissue which are the result of micro-organic parasitism, the treatment should look not only to the removal of the pressure but also to the elimination of the foreign bodies or poisons and the arrest and removal of the micro-organic process.

Most of our drugs known as analgesics act either by dulling sensation through the brain itself or by relieving pressure through depression of the circulation. When the drug acts through the brain it probably does so by paralysis of the nerves of sensation. Such drugs are usually hypnotics as well as analgesics and to some extent relieve pain by producing stupefaction. The best exemplification of this class of drugs is opium and its derivatives.

Drugs which are analgesics through the relief of pressure usually exercise their power through the heart. They depress the heart action either by inhibition from the brain centre or by weakening the muscular power of the heart.

In the light of modern knowledge of disease there is a way of relieving pain which is more philosophical and safer than the methods which have been in vogue, namely, by elimination of the toxins which produce the pain. Elimination may be excited through any of the excretory organs but can be accomplished most quickly through the skin and the alimentary canal.

The eliminative process is particularly valuable and desirable when the pain is due to hyperæmia set up by an acute micro-organic infection. In such cases depletion of the circulation by a very free action of the skin or the bowel will bring prompt relief. A profuse sweat in a Turkish bath, a hot scrub bath with a flesh brush and soap, or a free purgation with sulphate of magnesia, or some of the saline purgatives will nearly always give prompt relief.

Pains which can be relieved in this way are headaches and neuralgias caused by acute colds. These pains are most frequently caused by pressure on the nerves along the upper respiratory tract, especially in the nose. Relief of the pressure brings prompt relief of the pain, and a depletion of the circulation with an elimination of the toxins, which produce the hyperæmia, brings prompt relief of the pressure.

Pains which are set up at the onset of acute infectious diseases, as, for example, in grippe, can be relieved in the same way. Here the pain no doubt is due in a measure at least to the poisoning of the nerve ends by the toxins and not entirely to pressure from hyperæmia. Elimination of the toxins and depletion of the circulation brings relief. It was in such cases that the old time bleeding was so useful and soothing.

For depletion through the bowel the best drug at our command is sulphate of magnesia. This should be given in teaspoonful doses at intervals of an hour or two until many liquid stools have been produced. Depletion of this kind can be kept up for a long time without producing weakness or discomfort.

Pains which are caused by deposits in the nerve sheathes and by poisoning of the nerves from toxins can be relieved by a gradual continuous elimination through both the skin and the alimentary canal. A slower process is necessary in these conditions and the elimination should be kept up on a lower scale for a longer period of time. In these cases daily scrub baths with soap and hot water over the entire body and the administration of small doses of sulphate of magnesia at short intervals give most excellent results. Pains which are usually known as lumbago, myalgia and chronic rheumatism will often yield to a treatment of this kind when they yield to no other. For this purpose sulphate

of magnesia should be used in five to ten grain doses every hour for weeks and even longer periods if necessary. The valuable results obtained at some of the Spas undoubtedly are due to the continuous use of small doses of sulphate of magnesia and other salines in the waters. As good results can be produced in the home of the patient at much less expense by a proper use of salines.

Pains set up by hyperæmia or inflammatory conditions of the serous membranes can best be relieved by rest and depletion. When such pains occur in the pleura almost immediate relief can be secured by strapping with adhesive plaster and depleting the patient with saline purgatives. When pain occurs in a joint relief can be obtained by the same methods. It is only when the pain occurs in such an organ as the pericardium and the peritoneum, where splints cannot be applied, that an opiate must absolutely be resorted to for the relief of the pain and even in these cases something can be accomplished by relative rest and depletion. Especially when the pain is in the peritoneum is it possible to produce good results with small doses of salines at short intervals for a considerable period of time. Nothing will give quicker relief, for instance, in the pain of appendicitis than small doses of sulphate of magnesia every half hour day and night until the pain is relieved. This treatment not only relieves the pain but frequently depletes the appendix sufficiently to reduce the inflammatory process.

Applications of ice or heat are of use in the treatment of pain where it is due to hyperæmia of a beginning inflammatory process. In these cases the heat and cold act in the same way by stimulating the nerve ends away from the injured part and drawing the blood away from it. Dry cupping is valuable over an inflamed organ and acts in the same way with, perhaps, the addition of drawing some of the serum into the tissues. Dry cupping is of particular service in the early stages of pneumonia and pleurisy. To get the full benefit of dry cupping in pneumonia, however, they should be applied daily for the first five or six days.

A method of relieving pain which is somewhat similar to the dry cups, but perhaps more heroic, is the application of a fly-blister. The fly-blister not only depletes the parts in which the disease process is going on but it draws to the surface blood serum which contains the antitoxin set up by the disease process. If this blood serum is allowed to absorb after it has been drawn into the cuticle it sets up a reaction and produces a certain amount of immunity against the micro-organisms which produce the disease. By leaving the fly-blister on only a short time, say an hour, and then raising the blister with hot towels the cuticle retains sufficient firmness to hold the serum until it can be absorbed. This method of applying a blister is a valuable resource in the treatment of diseases in which an immunity has to be set up before recovery takes place. It is one of our most valuable assets in the treatment of tuberculosis.

Not only is the eliminative method of dealing with pain preferable to the analgesic and depressant methods because it gets rid of the cause, but also because it is safer. Opiates and all the analgesics which operate by dulling the sensation interfere to a greater or lesser extent with elimination and block up the poisons in the body. As these poisons all have a damaging

influence on the tissues their retention in the body even for a relatively short time may cause injury, which ultimately results in an unfavorable termination of the disease. Depressants may also do serious injury to the patient. By weakening the circulation they may deprive him of a physical resource which is of great importance to him at the end of a long struggle against disease.

If we are to keep step with modern progress of scientific medicine we must learn to relieve pain by elimination and by methods which do not pen up the toxins of micro-organisms. We must stop treating pain as a symptom and treat it on a rational basis. Relief of pain must be aimed at but in such a way as not to do greater injury than the pain itself can produce.

THE PRESENT KNOWLEDGE OF THE ACTION OF CATHARTIC DRUGS.*

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Saline cathartics were practically unknown until the middle of the seventeenth century when the attention of physicians was drawn to the *sal mirable* (sodium sulphate) of Glauber. The discovery of the purgative properties of this salt proved to be the impetus which led to further investigations of other similar compounds, as was attested by the rapidly increasing number of saline bodies soon shown to have similar action; thus, Seignette, an apothecary of Rochelle, prepared in 1675 the double tartrate of potash and soda. A little later the cathartic effect of a salt present in the springs at Epsom was shown to be due to magnesium sulphate. Phosphate of soda was found in the urine in 1737 by Hellot and, fifty years later, was introduced into medicine as a purgative.

The discovery of the effects of these salts preceded by many years any attempt to determine their mode of action in the body. With the beginning of the nineteenth century, however, there is to be noted the appearance in the literature of a large number of papers on the topic leaving in their wake certain theories which are more or less familiar to-day. Poissueille and Liebig, for example, believed that in the then newly discovered physical property of salts, called osmosis, was to be found a satisfactory explanation of the purgative action of these compounds. Their view that the salts excite a flow of fluid into the intestine by virtue of their osmotic properties was readily accepted and was maintained by a large number of physiologists. It was not until the problem was attacked by Claude Bernard that this extreme physical theory received a check. It was further called into question by the researches of Aubert, and Buchheim and Wagner, who clearly demonstrated that this theory did not offer a complete and satisfactory explanation of cathartic action. In its

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* Read before the American Therapeutic Society in the Symposium on Diet, New Haven, Conn., May 7, 1909.

place increased peristalsis and mechanical irritation were suggested as the cause of purgation.

The one man who has probably done most to bring order out of the chaos of conflicting theories prevalent in the middle of the last century was Mathew Hay, a medical student in Edinburgh. He began his extended and truly remarkable series of investigations with the assumption that the alimentary canal is not alone a neuromuscular mechanism but that it has other equally important functions, namely, those peculiar to secreting glands. These functions must be fully considered, according to Hay, before definite conclusions can be drawn regarding the mode of action of cathartics. A résumé of his conclusions is worthy of brief consideration. First of all saline cathartics produce their effects only when given by mouth. They are without purgative effect when administered subcutaneously or intravenously. Saline cathartics do not directly increase peristalsis and except in concentrated solutions do not produce enteric irritation. Their primary action is not upon extrinsic nervous elements nor upon muscular fibres, but is exerted upon the intestinal gland cells. The first step in purgation by salines is the accumulation of fluid within the intestine, the production of which is caused by the excitation of the secreting cells of the intestinal follicular glands. This excitation is caused either by the saline coming in contact with the cells, or by acting upon them reflexly through the agency of the intra-intestinal nerves. Owing to the cells being deeply situated within the gland and thereby removed from contact with the contents of the intestine it is unlikely that the salts act directly on the cells. Even were it assumed that the salt could diffuse into the cavity of the gland and thus reach the cells, it could hardly reach the cells more readily than if it had been injected into the blood-stream. But in the blood it is without action. The saline cathartics would therefore appear to stimulate the glands reflexly, by producing a certain impression on the sensory nerves terminating in the surface of the mucous membrane of the intestine, which impression, conveyed probably through the plexus of Auerbach, and that of Meissner to the secreting cells of the glands, excites them to action. In regard to osmotic properties Hay further claimed that the salt does not penetrate the cavity of the gland sufficiently far to exert appreciable osmotic influences upon the secreting cells. The properties possessed by saline cathartics which Hay considered responsible for the excitation of the intestinal fluid are bitterness and a more or less specific action. The more bitter the salt the more efficacious. The purgatives are not more irritant than other inorganic salts, for example, sodium chloride is much more irritant than sodium sulphate but is a much weaker cathartic. Indiffusibility is also another important factor. This does not aid the secretion but hinders absorption after secretion has taken place, and also retards the absorption of the original intestinal contents. While increased peristalsis usually accompanies catharsis it is not essential. Peristalsis is merely subsidiary, being induced by the distention resulting from the accumulation of fluid within the intestine. Simultaneous with secretion into the intestine there is a concentration of the blood and a correspondingly diminished excretion of urine which is later followed by the re-establishment of the normal

condition of the blood and diuresis. The latter causes a second concentration of the blood considerably less in degree than the first concentration but continuing throughout a longer period. So much for Hay's views.

Since the time of Hay various other investigators have attempted to explain the action of saline cathartics differently. Thus Wallace and Cushny, at Ann Arbor, promulgated the theory that salts are efficient purgatives because their solutions retard absorption, thus keeping the intestinal contents fluid and rendering easy their passage along the alimentary canal. It is also clearly shown that the acid ion is the determining factor here. For example, sodium sulphate, sodium phosphate, sodium citrate, potassium citrate, etc., are all looked upon as cathartics while sodium chloride, potassium chloride, etc., are believed to be indifferent in this respect. It is the acid ion, the sulphate, phosphate, etc., which is the effective agent. In magnesium salts the magnesium would also appear to be involved, for magnesium sulphate and citrate are generally believed to be more effective than the corresponding salts of the alkalies; and, in addition, magnesium oxide, chloride and carbonate possess cathartic properties. The presumption is, therefore, strong that the magnesium ion is not indifferent as are the potassium and sodium ions. The basis for the theory of these investigators is to be found in their observations on absorption. The salts, *i.e.,* the acid ions, like the sulphate, and phosphate which cause purgation, are less readily absorbed from the intestine than are those like the chloride, which are without cathartic action. Moreover, those acid ions which form insoluble calcium salts are not easily absorbed and are the most effective cathartics. The suggestion is, therefore, obvious that the ions which are concerned in purgation bring about this condition by preventing absorption owing to the formation of insoluble salts.

Loeb has stated that those salts which produce purgation are identical with those that induce irritability, muscular twitchings and hypersensitiveness of the nervous system. He suggests that the increased peristalsis may be due to an augmented irritability of the nerves and muscles of the intestine. J. B. MacCallum working on this hypothesis has demonstrated that the saline cathartics do indeed increase peristalsis and are responsible for a flow of secretion into the intestinal lumen, but it is also maintained that the presence of the salts in the blood is the essential factor in purgation. This was corroborated by Bancroft, but Auer has lately clearly shown that increased peristalsis and purgation are not synonymous terms. Purgation may take place without increased peristalsis and whereas parenteral administration of saline cathartics may lead to an augmented peristalsis, purgation never occurs. On the other hand, constipation may result from the subcutaneous injection of some of the saline cathartics, as sodium sulphate and yet peristalsis may be increased. In the future we must distinguish between motor effects and the discharge of the intestinal contents. At present at least two types of intestinal movements are recognized: a progressive peristalsis in which the intestinal contents are passed onward, and a pendular peristalsis whereby the enteric contents are merely moved backward and forward. It is, therefore, easy to see how a cathartic drug may produce increased peristalsis without causing a dis-

charge of the intestinal contents. It is true, however, that purgation can be induced at least in animals by subcutaneous injection of salines if a large quantity is introduced. On the basis of these experiments Auer has calculated that, for an average man, over a pound of sodium sulphate dissolved in a quart and a pint of water would be necessary for purgation if subcutaneously introduced. This, however, is hardly a therapeutic measure to induce purgation.[1]

Chemically the cathartic drugs of vegetable origin may be conveniently divided into three great groups: (1) the purgative oils, as castor and croton oils, (2) the purgatives of the anthracene series, comprising such compounds as senna, aloes, rhubarb, etc., and (3) the group of glucoside and acid bodies, consisting of substances like podophyllum, colocynth, jalap, gamboge, etc. All the vegetable cathartics must be regarded as local irritants. It is obvious, however, in view of their varied chemical nature that certain differences in behavior should be manifested. In general, the vegetable purgatives require a longer period of time to produce their effects than do the saline cathartics. The reason for this is that nearly all these substances undergo a change of one kind or another before they are capable of causing purgation. Castor oil is ordinarily a neutral oil which is inactive in the stomach and undergoes little or no change in that organ. In the intestine, however, it is hydrolyzed by the lipolytic enzymes, there present, giving rise to glycerine and the sodium salt (a soap) of ricinoleic acid. This is the body which is the effective agent in catharsis, since it is an irritant to the intestine, inducing a greatly augmented peristalsis. In addition, a certain quantity of intestinal secretion is to be observed. Magnus, in his recent observations with the Roentgen ray method, has shown that castor oil when neutral causes a long delay in the emptying of the stomach. This is essentially a characteristic of all fats, as has been shown by Pawlow and his pupils. In case castor oil has stood and has become rancid, that is, a partial hydrolysis has taken place leading to the formation of ricinoleic acid, or has been shaken with soda solutions, the movements and emptying of the stomach are greatly stimulated. Indeed peristalsis may become so active that vomiting is induced. When castor oil has been saponified in the intestine greatly accelerated peristalsis occurs and the intestinal contents are hurriedly passed through the remainder of the alimentary canal. The force of the peristaltic movements is sufficiently great to break the food masses into small bits which hurry back and forth like tadpoles in a pool. Defæcation does not occur, however, until the large intestine has been filled even to the rectum. The action of croton oil is similar to that of castor oil. The salt of the fatty acid, crotonoleic acid, resulting from its hydrolysis is, however, very much more irritant than the corresponding salt derived from castor oil, hence its more drastic effects. Since croton oil generally contains some of the free acid, irritation of the gastric mucous membrane may also occur.

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1 The controversy concerning the activity of saline purgatives acting through the blood has been reopened very recently by the observations of Hertz, Cook and Schlesinger (Proc. Roy. Soc. Med., 1908, ii, No. 2), who assert that in man these compounds must get into the blood before watery stools are produced.

The principal effect of this group of compounds is the production by local irritation of a very active peristalsis which hurries the intestinal contents along the alimentary, thereby interfering with the absorption of the entire contents and of a certain quantity of secretion which is poured into the intestinal lumen.

The introduction into the body of such substances as senna, cascara, rhubarb, etc., leads to purgation whether the drug is administered by mouth, subcutaneously or intravenously. The active substances are di- or tri-oxy-methylanthraquinones which possess more or less specific irritant properties for certain portions of the alimentary canal, and the principal visible effect is the production of a greatly increased peristalsis. Senna may be taken as a typical example. It has lately been shown by Magnus that senna has a specific influence upon the movements of the *large* intestine. Observed by means of the Roentgen ray the progress of food, through the alimentary canal, given with senna, is uneventful until entrance is made into the large intestine. As soon as the food masses enter the large intestine there is observed a very active peristalsis which rapidly leads to defæcation. The mechanism by which this is accomplished is not clear unless it is assumed that the active principles are specific stimuli for certain intra-intestinal nerves, for it is probable that a large portion of the drug is absorbed before the large intestine is reached. Elliott and Barclay-Smith have ascribed to a nerve centre in the sacral portion of the spinal cord this control of the movements of the large intestine. Magnus has demonstrated that the action of senna is in no way inhibited after destruction of this portion of the spinal cord. The senna effect if of a nervous nature can be produced only through a local reflex centre in the intestine.

In general the vegetable cathartics act much less rapidly than the saline purgatives. This becomes readily intelligible when it is remembered that nearly all of the preparations are bodies which are more or less insoluble in certain portions of the alimentary canal. They are insoluble in acid solutions, but are readily soluble in alkaline media. When, therefore, a dose of cascara is given by mouth precipitation occurs as soon as the acid medium of the stomach is reached. The drug remains insoluble until it comes in contact with the alkaline contents of the small intestine. These alkaline solutions are partially absorbed from the intestine and, since they are effective whichever way administered, it may be that their presence in the blood is the essential factor.

Concerning the glucoside-containing group of bodies like jalap, colocynth, podophyllum, but little can be said. The investigations that have been carried out make it probable that this heterogeneous class of substances has much the same type of action as that of the anthracene group.

Clinicians have long sought a cathartic drug which can be given subcutaneously. Such a drug would be of great advantage in a variety of conditions: in gastric inflammation where purgation may be necessary, in apoplexy, in coma, and other conditions of unconsciousness, after certain abdominal operations, in the treatment of epileptics and the insane, etc. Many such drugs have been suggested nearly all of which will produce the desired effects. Invariably, however, they give rise to complications, which prohibit their use

in the form of a subcutaneous injection. Podophyllin injected hypodermically will cause purgation but will also lead to the development of ulcers or other similar troubles at the point of injection.

Recently, quite by accident, a new cathartic has been discovered which promises to fill the long-felt need for a cathartic suitable for parenteral use. For governmental reasons it became necessary in Austria-Hungary to ear-mark a certain wine. A substance was therefore added to it which was colorless in acid solution but which became red on the addition of an alkali. The body was phenolphthalein, the common laboratory indicator. When the wine was placed on the market its consumers were troubled with a diarrhœa which persisted so long as the wine was taken. On investigation it was shown that phenolphthalein (a derivative of tri-phenol-methane), is a very active cathartic. In the stomach it is unchanged but in the intestine the sodium salt is formed which is even more effective than phenolphthalein itself. Its use is attended by no irritation to the enteric tract. It does not provoke peristalsis but acts by exciting a hypersecretion of fluid in the intestine. It has no deleterious influence upon the kidney and is non-toxic. According to Fleig its sodium salt is especially well adapted for subcutaneous injection. Abel maintains that the sodium salt is not as good for the purpose as certain new halogen derivatives especially the chlor derivatives, which have not yet however been fully investigated. The latter are only slowly absorbed from under the skin and a small dose is capable of producing watery stools for several days.

Quite recently another distinct type of substance has been introduced. This is agar-agar, a seaweed which is being prescribed in habitual constipation. Unlike the bodies thus far considered it does not produce watery stools but the excreta are well formed and apparently normal. Agar-agar is an indigestible carbohydrate which has the property, like gelatin, of absorbing a large volume of water and it is to this combination of indigestibility and power of absorbing water that it owes its value as a laxative. What probably happens is that the agar absorbs fluid from the intestines and swells, thereby distending the intestine. The distention of the intestine and the increased weight of the intestinal contents are sufficient to account for a moderately increased peristalsis which results in defæcation.

RÉSUMÉ.

From the foregoing considerations it is apparent that the cathartic drugs may act upon the alimentary tract in a variety of ways, involving physical, chemical and physiological activities. Thus for the saline cathartics osmosis, mechanical irritation, nerve stimulation, inhibition of absorption, acceleration of secretory processes and increased peristalsis, together or alone, have been proposed as the effective factors in purgation. The consensus of evidence indicates that osmosis plays but a subsidiary rôle while mechanical irritation is absent. The essential factor is the production of an intestinal secretion by nerve stimulation with a simultaneous inhibition of absorption. Peristalsis is secondary.

Most of the vegetable cathartics are peculiar in that they will produce their characteristic effects by whatever channel introduced although certain untoward results may follow from the subcutaneous injection. It is possible that the proposed derivatives of phenolphthalein will obviate the difficulty. Unlike the saline cathartics the presence in the blood of vegetable purgatives appears to be the essential factor in bringing about purgation. The principal effect of this class of compounds is the production by local irritation of a very active peristalsis which hurries the intestinal contents along the alimentary canal. From the recent observations on the vegetable cathartics we have learned that different drugs may act upon entirely different portions of the alimentary canal. Thus, the purgative oils, according to their condition, *i.e.*, presence or absence of decomposition products, may influence the movements of the stomach and intestine or the intestine alone, whereas a drug like senna shows no action until the large intestine is reached. Peristalsis and purgation are not synonymous terms. Peristalsis may be of two distinct types either pendular movements, without progression of the intestinal contents, or peristalsis, by which the contents of the alimentary are passed along. It is the latter type which is effective in purgation.

In complications where it is undesirable to induce hypersecretion along the alimentary canal the salines should be avoided. On the other hand, in conditions of sluggish secretory activities they are indicated. Since secretory activity necessitates increased blood-supply to the parts involved the drawing of blood from other portions of the body may or may not be desirable. The increased secretion poured into the alimentary canal accounts for the efficacy of the salines in removing fluid from the body in œdematous conditions.

The employment of the vegetable cathartics is contraindicated in conditions where the alimentary canal is already in a state of irritation for these bodies are primarily irritants. They are indicated where the intestinal movements are sluggish and certain of them may be given when specific portions of the alimentary tract need stimulation.

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DIABETES MELLITUS AS AN INFECTIOUS DISEASE.*

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This paper is based upon investigations and experiments consequent upon the following line of thought: Glucose, diacetic acid and acetone compounds are products of fermentation. They are due to some unnatural ferments in the body. Is diabetes a fungus disease? If so, what treatment is necessary?

The fungus to suggest itself was the saccharomyces cerevisiæ, found in every diabetic urine. The first question to be answered was, Does this fungus produce glucose-forming ferments? This was easily answered for much study has been made of this fungus. While it is generally understood that its action is the fermentation of sugar into alcohol and carbonic acid, yet it is found that the sugar must be of a certain kind, like glucose. Other sugars must therefore be changed to this fermentable form. It has been demonstrated that one of the functions of this fungus is the production of soluble ferments, or enzymes, whose presence, by catalytic action, will change certain sugars into glucose and also the animal starch, glycogen, into glucose. One of these enzymes is invertase. This will change 100,000 times its own weight of cane sugar into glucose and levulose. It will change milk sugar into glucose and galactose and also maltose, the product of salivary and pancreatic digestion, into glucose. Another enzyme, more recently discovered is sucrase, which will change glycogen into maltose, which in turn will be changed by the invertase into glucose. We find then that this yeast fungus forms enzymes which produce glucose, the sugar of diabetes.

The next question to solve was, If this fungus is found in the urine, is it eliminated by the kidneys from the blood? In examining the blood for it, it was found that the coagulation hindered its growth on the culture media and that if coagulation was prevented by mixing the blood with a solution of the citrate and chloride of soda, one and a half per cent. of the former and one per cent. of the latter, a pure culture of the saccharomyces cerevisiæ was obtained in a few hours. As the blood used was less than a drop and obtained from a sterile finger tip, it is evident that this glucose-forming fungus exists in great abundance in diabetics. Sixteen cases, all that could be obtained, were examined with the same result.

Examinations were made to determine the resisting power of diabetics to this fungus. Opsonic indices were taken in the sixteen cases and were found to vary from .56 to 1.23, normal being 1. The opsonic index of each patient was a fair estimate of the physical condition. After a little experience it was possible to estimate with a fair degree of accuracy the index of a patient. A case of diabetes of pregnancy was found to be a mild one, the index was 1.04, but the blood and even the milk gave a pure culture of the fungus.

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* Author's abstract of paper read before the American Therapeutic Society, May 8, 1909.

Vaccines were tried on six patients, with no local or general disturbance. Three or four doses bring the index or resisting power above normal, even though diabetics do not resist infection strongly. The vaccines were found also to increase the sense of strength, give a feeling of well being, relieve or remove thirst and diminish the amount of sugar and urine excreted, even when the patient was on a mixed diet. More study of the use of vaccines is necessary. Lowered resistance is an important factor in the causation of diabetes as is seen by its occurrence in connection with obesity, pregnancy, syphilis, neurasthenia, nervous shock and certain nervous diseases.

Pathological findings are confirmatory of this theory of diabetes. The first thing to this time noted in the body is the increase of glucose in the blood. Later come congestions of liver, pancreas, spleen and kidneys, found in systemic infections. Still later come sclerotic, fatty and atrophic degenerations from the same cause. No other theory than that of infection explains such changes. It is curious that these late changes should be considered as causes.

Since the saccharomyces cerevisiæ are found abundantly in the blood, since they produce enzymes forming glucose out of certain foodstuffs and glycogen, since the system shows a disturbed resisting power to this fungus, since this resisting power is increased and all diabetic symptoms are relieved by the use of vaccines, and since the pathological findings are confirmatory, the author believes that diabetes is a fungus disease and should be treated accordingly.

The indications for treatment are to remove the cause, increase the power of resistance and relieve the symptoms. To remove the cause we should use antiseptics, increase the phagocytic action of the leucocytes by the use of vaccines and promote elimination by the kidneys if necessary. To relieve symptoms we should use diet, vaccines, tonics, alkalies in acidosis, and deep breathing exercises to aid oxidation and eliminate more carbonic acid. When boils, carbuncles or gangrene occur antiseptics and surgery are also necessary.

REQUISITES FOR THE TREATMENT OF THE PSYCHO-NEUROSES: PSYCHOPATHOLOGICAL IGNORANCE, AND THE MISUSE OF PSYCHOTHERAPY BY THE NOVICE.*

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We hear much about the neuroticism of modern days, the popular belief being that neurasthenia,[1] as it is loosely called, hardly existed until the latter end of the 19th century. It is supposed that this state of matters is due to the fatigue to the nerves of the modern strenuous life.

As a matter of fact, confessions, memoirs,[2] and the pictures of the time show that neurotic states occurred in the Middle Ages even more widely than they do to-day. Again, the "vapours" so often alluded to in the literature

* Read by invitation at the Symposium on Psychotherapy before the Washington Therapeutic Association, April 10, 1909.

of Queen Anne's time, would nowadays be called nervous prostration, and a "rest-cure" would be prescribed; but in that less enlightened age, they were appraised, empirically it is true, at their real value—mental vacuity, discontent or failure of adjustment to environment.

The last factor is shown by a close analysis to be the real cause of most cases of so-called nervous prostration[3]; and the indiscriminate administration of the rest-cure without a clear psycho-diagnosis will in the future be relegated to the limbo of such other medical superstitions as blood-letting and anti-pyretics.

Of course, adjustment fails when the nerve cells are poisoned, injured, receive insufficient oxygen or irregular supply of blood; but these are not psychic difficulties, and can be provided against by the internist and the pathological chemist. He succeeds in virtue of the precision with which he estimates the derangements in a body whose normal functions he has spent years in studying.

Similarly, the psychiatrist can succeed only by an understanding of normal mental reactions, and by a profound study of the data of morbid psychology. It must be recollected that the patients referred to him are those in whom empirical methods have failed. For example, they are "suggestioned" *ad nauseam*; one patient told me how thankful she was that I did not tell her she was better or minimize her mental suffering; for she hated the sight of a doctor; as each in turn made light of her state, and said she would soon be better; whereas she became worse, and the confidence she had reposed in her first physician had become profound distrust at the end of three years, at which time I was called in.

Another gross empirical error is the injudicious appeal to the patient's will-power.[4] The doctor who commits this solecism does not realize that the patient has by now exhausted his volitional power of response, previously highly stimulated by the complexities of social and professional environment. It is as if a lost traveller in a jungle which he does not know were directed to find his way back to the camp from which he had strayed. The real guide will show the way.

Such symposia as this are a sign that in psychotherapy blundering empiricism has had its day. We should laugh at the surgeon who tried to tie the lingual artery while ignorant of the anatomy of the sub-lingual triangle, or even to set a dislocation without understanding the structure of the joints; but the arrest of a morbid train of thought and the setting a mind at rest are much more delicate operations than those of the surgeon; and yet although the art requires finesse for its acquirement and years before the *tactus eruditus* is acquired, very few men hesitate to rush in where angels fear to tread—into the sacred precincts of the soul. A bull in a china shop would be less out of place.

Such assumptions of confidence where skill has not been acquired have in the field of gynecology called down just reproach from the masters of that art.[5] In morbid pathology, the result has been, if not less disastrous to our patients, certainly much more so to ourselves, both in wealth and prestige.

The Christian Science Church is a growing canker of contempt for science and its medical exponents; and its doctrine is inculcated to the plastic mind of childhood, to be there ineradicably fixed, even though enlightenment may come. The Emmanuel movement will become another source of malign influence; for it has now been publicly repudiated,[6] even by the few neurologists who were weak enough to countenance its apparently ethical commencement.

We can overcome these influences only by acting together, as is done in all successful organizations. The public requires and demands psychic treatment. They receive from the medical man, burdened with the complexities of his art, only indifference or an affectation of knowledge which they are quick to penetrate. I even know of a case where a medical man sent a patient to a mental-healer who advertises in the newspaper.

Now the remedy should be obvious enough. It is to provide facilities for instruction of medical men, first in psychology and psycho-pathology, and then in psychotherapeutics. To do this, wards and out-patient clinics must be provided in the hospitals, to which competent teachers must be appointed. In the meanwhile, the doctor who endeavors to bungle through the treatment of a psychoneurotic case, without understanding psychophysiology and pathology, and with only a rough empirical experience, is guilty of a crime to his profession. Such cases should be treated at least under the advice of a specialist, until the physician has learned to do so himself by observation and study under expert direction.

It is impossible in ten minutes to even indicate the kind of problems which psychotherapy studies,[7] all of them depending upon analytic diagnosis of mental make up, as well as of the physical factors which contribute to psychic insufficiency.

I may mention firstly the mythomanic[8] tendency, that is the impulse to take what appears the easier way of complete indifference with regard to truth. It is fundamentally a lack of foresight due to a deficiency of intelligence; but it has been acquired in early childhood, and has become an affective habit, which the intelligence is not powerful enough to overcome. Its prevention, and later the cure, depends upon the principle of "conditioning the reflexes," as shown in its most simple terms by Pawlow[9] in dogs, when he changed at will the stimulus needed to provoke gastric or salivary secretions. The whole art of education is based upon this principle of associating pleasant feelings with useful activities, of which truth telling is certainly one of the greatest. The re-education of a bad habit is similar in principle, but more difficult of accomplishment, and is best illustrated in the arts of playing a musical instrument or of speaking and singing.

Time forbids to trace the stages between such simple measures and the full complexity of the intellectual readjustments which psychotherapy attempts.

The problem is comparatively easy compared with that where the emotions and feelings are concerned, as, for instance, in such cases of sexual perversion as the classic one of Krafft-Ebing,[10] where the sexual act could

be performed only when the patient's wife was dressed in a white apron, owing to the circumstance that it was with a maid so dressed that he had first had connection. Still more striking in this connection is the case recently reported by Stcherbak,[11] in which the only means of producing orgasm was the placing upon the knees the elegantly booted lower extremities of a fashionably dressed woman. (The sexual factor in the production of neuroses is most important, and it is time the reticence we display towards it cease, and be replaced by thorough discussion.)

But emotion may be conditioned too. Indeed, it is the affective accompaniments which give intellectual attitudes their dynamic power.

This is an important element in cases of traumatic neuroses. Here, the replacement of the morbid feeling tone by another cannot be direct, but must be accomplished through the replacement of the causative idea by another one. *Ex cathedra* affirmation or cold appeal to the intellect cannot change an attitude or mood of any standing. The method of doing this may be illustrated by the gastric neuroses,[12] where a false-fixed idea creates a feeling of disgust while food is being eaten, which, in turn, inhibits the digestive secretions. As I have pointed out elsewhere, this morbid conditioned reflex has usually its source in the unskilful suggestions of doctors[13] who have not understood the rôle of the psyche in pathology, and who have gone on treating the symptoms by referring them to the stomach itself, thereby only fortifying the patient's error; so that by the time he reaches the psychotherapist, he is inaccessible to conviction that the trouble is really in his head, as Déjérine[14] puts it. Accordingly, he cannot be convinced by assertion or argument, as he has lost confidence in these; but is convinced by the stern logic of events, shown by his rapid gain in weight while isolated. It is then that the physician's dialectic finds its opportunity,[15] and the patient's false idea is dispelled.

I have shown elsewhere[16] that both of these conditions are forms of hysteria, in that they are susceptible of "production by suggestion and of removal by suggestion-persuasion."[17]

Some patients of the more intellectual grade are put on the road to recovery by the first interview, although the recovery from emaciation and the starvation habit which the stomach has acquired requires some time.

In traumatic neurosis my experience has been more favorable,[18] one interview often sufficing. I attribute this, however, to the fact that these patients are in a better position than the gastric ones to realize the truth; for until the psychotherapeutic interview, they have heard only *ex parte* opinions or indiscriminate sympathy for an attitude which at heart they would be glad to be rid of. Without confidence given by a thorough knowledge of organic disease of the nervous system the neurologist's diagnosis and affirmation cannot be positive.[19] When to this is added the muddled conceptions so prevalent about the traumatic neuroses, one cannot wonder at the reproaches heaped upon our profession as medico-legal experts.

From these types of what might be termed perverted reaction to environment, I trust that my hearers will gain at least a slight conception of the

problems with which psychotherapy deals; and that, from a comprehension of these clearer-cut conditions, they may be in a better position to estimate the much commoner cases where one may be called upon to guide into productive and happy channels perversions of disposition, such as despondence, suspiciousness, facile emotionalism, religious sentimentalism, social ashamedness, weakness of character, and morbid fears, pains, besetments or any form of inadequacy to personal and social requirements.[20]

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18 WILLIAMS: The Traumatic Neurosis and Babinski's Conception of Hysteria, Inter. Congres. for Industrial Accidents, Rome, May, 1909; also Monthly Cyclo., Nov., 1908.

19 DÉJERINE: In Camus et Pagniez, *loc. cit.*

20 The most complete discussion of these is found in Raymond et Janet, "Les Obsessions et la Psychasthénie," Paris, 1903.

THE HYPNOIDAL STATE IN PSYCHOTHERAPEUTICS.*

By BORIS SIDIS, M.A., Ph.D., M.D.,

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BROOKLINE, MASS.

Hypnosis has long ago been brought before the medical profession as a state in which maladies of a purely psychic origin, such as the various forms of hysterias, obsessions and phobias could be greatly alleviated and even permanently cured. The works of Braid, Charcot, Liébault, Bernheim, Forel, Vogt, Morton Prince, Breuer and Freud, Schrek-Notzing, Bechterev, Janet, Babinski and others are well known to the student of abnormal psychology. Recently, however, psychopathologists have become more and more impressed with the practical limitations of hypnosis. Many patients cannot be hypnotized, others require special conditions for their hypnotization, while still others positively refuse to submit themselves to any hypnotic treatment being afraid of mystical and occult influences. There is no denying the fact that there exists a good deal of opposition against psychopathology and psychotherapeutics. It is certainly a pity that many medical men of note are not acquainted with the scientific work accomplished in the domain of abnormal psychology both in this country and abroad. An American medical journal of a well known American medical association rejects works on psychopathology and psychotherapeutics. The editor is apparently under the impression that he is doing a service to American medical science, that disquisitions and "researches" on eczema, diarrhœa and cognate scientific subjects are specially valuable and suitable to the mind of the medical reader. In Germany, France, Austria, Russia, Italy, work in abnormal psychology has long ago gained recognition as a science of theoretical and practical importance to the physician and to the lawyer, while in the United States conservatism and even ignorance in regard to abnormal psychology are still paraded as an honorable badge of orthodox medical respectability. Is it a wonder that the European regards with reserve the official scientific work of American medicine?

Since hypnosis meets with so much opposition, the question naturally arises,—Is it possible to affect and modify pathological mental states outside the hypnotic state? The problem is practical and requires a solution. In my work "The Psychology of Suggestion," I pointed out that suggestibility can also be induced in the normal waking state. I have also shown that among the conditions of normal and abnormal suggestibility monotony and limitation of voluntary movements play a very important rôle. Any arrangement tending to produce monotony and limitation of voluntary activity brings about a

* Author's abstract of paper read before the American Therapeutic Society, May 8, 1909.

subconscious state of suggestibility termed by me subwaking or hypnoidal, a subconscious state in which mental life can be affected with ease.

In the hypnoidal state consciousness is somewhat vaguer than in the waking condition; memory is diffused, so that experiences apparently forgotten come in bits and scraps to the foreground of consciousness. Emotional excitement subsides, voluntary activity is passive and suggestions meet with but little resistance. The hypnoidal state is a rest state, a state of physical and mental relaxation. The favorable therapeutic results obtained by me led me to a closer study of what I, some thirteen years ago, regarded as a peculiar mental condition.

For some time my work was confined to observations and experiments on human subjects. Recently, however, I undertook, at the physiological laboratory of Harvard Medical School and at my own psychopathological laboratory, a series of experiments on sleep in various animals—the frog, the bird, guinea-pig, cat, dog, infant, and human adult.[1] The experiments prove that the hypnoidal state is also present in the lower stages of animal life. Furthermore, the experiments clearly show that the further we descend in the scale of animal life the more prominent, the more essential, does the subwaking state become. The facts lead to the conclusion that the hypnoidal state is the primitive rest-state out of which sleep has arisen. We may say that both hypnosis and sleep are highly differentiated states which have become evolved out of the primitive, undifferentiated, subwaking hypnoidal state which is the rest-state still characteristic of the lowly organized forms of animal life. The subwaking or hypnoidal state is essentially an intermediate state belonging to the borderland of mental life. On the one hand the hypnoidal state closely touches on waking life, on the other it merges into sleep and hypnosis. In man the subwaking state is but in a rudimentary condition,—it has shrunk to a transitory stage in the alternation of waking and sleep.

From a theoretical and etiological diagnostic standpoint the hypnoidal state is of the utmost importance, since by means of it we are enabled to discover the causation and psychogenesis of the mental malady. We can follow the history and development of the total symptom-complex. This in its turn gives an insight into *modus operandi* of disintegration of the pathological mental system underlying the psychopathic malady. We can also by means of the hypnoidal state form a plan as to how reconstruct, reorganize, synthesize the disintegrated elements of the broken-up pathological system obtaining normal and healthful reactions.[2]

The present therapeutic aspect of the hypnoidal state is certainly of great value. Our laboratory experiments have revealed the significant fact that the hypnoidal state is the primordial rest-state, sleep is but a derivative form of rest. In many forms of diseases, especially nutritional ones, it is often advisable to revert to a more simple form of nutrition, to a simpler and more primitive form of life. Similarly in psychopathic maladies a reversion to a

1 Sidis: "An Experimental Study of Sleep."

2 Sidis: "Psychopathological Researches; Multiple Personality; Studies in Psychopathology," Boston Med. and Surgical Journal, 1907.

simple, primitive form of rest-state proves to be of great therapeutic value. Now in plunging the patient into the subwaking, hypnoidal state we have him revert to a primitive rest-state with its consequent beneficial results.

An important result of my investigation, a result which I can only give here in a general statement is *the access gained through the agency of the hypnoidal state to the stores of dormant, potential reserve energy possessed by the patient. The therapeutic value of the hypnoidal state consists in the liberation of reserve energy requisite for the synthesis of the dissociated systems which form the pathological basis of the psychopathic malady.*[3]

I may add here in passing that there are good reasons to suppose that Weir-Mitchell's rest-cure has derived some of its therapeutic value from the unconscious, empirical use of the subwaking, hypnoidal rest-state.

SUPERFICIAL DERMATITIS OF THE EXTERNAL AUDITORY CANAL.*

By CLARENCE JOHN BLAKE, M.D.,

Professor of Otology in Harvard University Medical School.

BOSTON, MASS.

The peculiar provision in the epidermal lining of the inner half of the external auditory canal for the removal of normal detritus, as well as the ready separability of the epidermis itself under conditions of congestion, and of serous exudation from the underlying derma, add to the interest attaching to what would be a comparatively unimportant subject, but that it has to do with relationship to the function of an organ of special sense.

The epithelial layer which forms the outer coat of the drumhead has a defined movement outward from the center toward the posterior superior periphery of the membrana vibrans, and this movement is continued outward along the inner half of the external auditory canal, in two spiral lines, until that part of the canal, the junction of the osseous and cartilaginous portions, thickly beset with hairs and rich in glandular elements, has been reached.

Under normal conditions when the epidermis, in its progressive movement outward, has attained this point the effete epidermal cells separate themselves, as on other parts of the body, and are individually extruded, or mingle with the product of the sebaceous and ceruminous glands and are extruded in mass.

Under conditions of irritation, either directly mechanical, or reflexly incident to a systemic condition, resulting in hyperæmia and congestion of the derma, with serous exudate, the epidermal layer becomes separated, its outward progress hindered, and its continuity destroyed, the maceration of the epidermis by the serous outflow still further impeding the natural process.

Aside from cases of mechanical causation, or those coincident with an acute process in the middle ear, this form of superficial dermatitis is found in

[3] A full account is to appear in the Boston Med. and Surgical Journal.

* Author's abstract of paper read before the American Therapeutic Society, May 8, 1909.

persons of a rheumatic or gouty habit, as an occasional concomitant of diabetes, and sometimes, in young women, recurring with the menstrual epoch. The local aural symptoms are, in all instances, much the same and amenable to the same simple treatment, consisting in careful cleansing of the canal from all discharge and detritus by means of a weak warm solution of bicarbonate of soda, careful drying by means of successive pledgets of sterile absorbent cotton, and the touching of the denuded surface with a nitrate of silver solution of a strength from 60 to 80 grains to the ounce.

Cyclopædia of Current Literature

ATROPIN IN DIABETES MELLITUS.

Atropin has been administered by the author in diabetes, in the form of the methylbromid and the sulphate. As the initial dose of the methylbromid he has given gr. $\frac{2}{15}$ t.i.d. to adults, gradually increasing this by gr. $\frac{1}{15}$ until gr. $\frac{8}{15}$ t.i.d. are being taken. In one case three grains were given daily over a short period with no other toxic effect than dryness of the throat. The initial dose of atropin sulphate should be gr. $\frac{1}{150}$ t.i.d., which may be gradually increased to gr. $\frac{1}{20}$ t.i.d. Children require a dosage proportionate to their age. It is noteworthy that these unusually large amounts of atropin are well tolerated, provided the initial dose is small and the increase gradual. It is not necessary to attain the maximum dose in the majority of cases, however, much smaller amounts often causing the glycosuria to disappear. With the appearance of the first toxic symptom, usually a marked dryness of throat, the atropin was either stopped entirely, or, more often, the attempt to increase the dosage was temporarily abandoned. It was always possible to resume the drug after a period of rest. The action of atropin may be summed up under the following heads: (1) Reduction in the amount of sugar excreted; (2) increase in carbohydrate tolerance. J. Rudisch (Medical Record, June 26, 1909).

COLLES'S FRACTURE.

Typical Colles's fracture presents an anteroposterior and lateral deformity of the lower end of the radius with impaction of the upper into the lower fragment. In severe cases this is complicated by fracture of the ulnar styloid and injury of the ligaments and cartilage. Treatment demands efficient reduction of the bony fragments in the beginning. For this an anæsthetic is desirable, because impaction must be broken up to avoid lateral deformity and widening of the wrist. Restoration of the functional and anatomical integrity of the wrist demands immobilization till the bone is united. This period is three to five weeks. Protection of the joint must be continued till healing is completed and all of the original traumatic inflammation has subsided. This period is six to eight weeks when the ligaments are injured and eight to ten weeks when the cartilage is injured. Gradual return to use favors a perfect result and avoids unnecessary complications and sequelæ. P. P. Swett (New York Medical Journal, July 24, 1909).

CRETINISM, THYROID TREATMENT OF.

Since 1905, the Austrian government has been supplying thyroid tablets free of charge in seven endemic foci of cretinism with medical inspection twice a year. About 108,600 tablets were thus distributed in 1907, and 157,900 in 1908, the number of persons taking them was 1,011, and 608 were still under the thyroid treatment at the close of 1908. The results are tabulated under various headings, special attention being paid to the increase in height as the most certain index of the benefit derived. Other findings are more liable to be influenced by subjective impressions. The report states that the results have been extremely satisfactory, confirming the efficacy of thyroid treatment as a prophylactic measure especially in endemic foci of cretinism. In 677 cases followed to date marked improvement was obtained in 48.6 per cent., and only 8.6 per cent. showed no benefit from the course. The most striking proof of the beneficial influence of thyroid treatment on the growth is the fact that in 377, that is, in 85.7 per cent. of all cases, the former dwarf cretin children grew to be taller than the normal standard for their age. As a rule, treatment was restricted to school children; the oldest cretin was 26 years old. Even after 20, a number of the cretins grew much taller and the other symptoms of cretinism became attenuated. This growth at this age is so surprising, that it seems as if the growing power of the preceding years had been held in reserve, until suddenly released by the thyroid treatment, when it made all its force felt in a relatively short period. A large number of the more interesting cases are cited in detail. One cretin, 20 years old, grew 11 centimeters, but then refused to continue treatment as he outgrew his clothes too fast. He did not lose his milk teeth until after thyroid treatment was commenced, although those of the second dentition were in place. A. von Kutschera (Wiener klinische Wochenschrift, June 3, 1909; Journal American Medical Association, July 17, 1909).

EXOPHTHALMIC GOITER AND THE REPRODUCTIVE FUNCTION.

The writer's experience includes nine cases in which exophthalmic goiter showed an unmistakable connection with ovulation. In several, restoration of normal ovulation was accompanied by the subsidence of the exophthalmic syndrome. He does not accept the German view that pregnancy aggravates the tendency to the latter, but rather agrees with Charcot that improvement is liable to follow measures to regulate the menstrual function. In his first case the exophthalmic goiter developed at puberty, but subsided as menstruation became regular; it returned in typical form during a period of amenorrhœa, but subsided again during a pregnancy, and this fluctuation occurred during three pregnancies. In another case exophthalmic goiter developed during a period of amenorrhœa and persisted for five years with varying intensity. The genital apparatus was infantile, but it developed between 25 and 30 and menstruation returned and became regular about 30, at which time the exophthalmic triad vanished completely. Pregnancy occurred in the next year; disturbing vomiting occurred at first, ceasing about the fourth month, and conditions have been normal since, for eleven years. The confinement and lactation were normal. In one family exophthalmic goiter was observed in three generations, the affection becoming attenuated or disappearing with regular menses. A number of other cases

showed the constant sequence of increasing corpulence, suppression of the menses and development of the exophthalmic goiter. Nearly all these patients were practically cured under treatment which generally included hydrotherapy, restriction to a milk diet or electricity, or all combined. A. Pinard (Annales de gynécologie et d'obstétrique, May, 1909; Journal American Medical Association, July 10, 1909).

GASTRIC DIGESTION OF INFANTS.

The motility of the infant stomach varies inversely to the concentration of the food. The more dilute the food the more frequently may the feedings be given. Lime water does not reduce the acidity of the gastric contents, the neutralizing of a portion of the acid being overcome by an increased stimulation of hydrochloric acid by the gastric glands. This may increase the amount of the acid available for digestion. Sodium citrate acts on the acid in the stomach, converting it into sodium chlorid and this markedly reduces the "available hydrochloric acid." Barley water seems to have no constant effect on the chemistry of gastric digestion in the infant. The type of infants who vomit persistently may be divided into two classes, hypoacidity and hyperacidity. Test feedings should be given to this type of infants to determine to which class they belong. A five-percent. milk-sugar solution seems to be the most satisfactory feeding to determine fine differences in the gastric contents. This may be followed by a mixture of milk of one part, water two parts, to determine to what extent the gastric glands are capable of responding to stimuli. For the lactose solution, thirty minutes is the most satisfactory time to allow the feeding to remain in the stomach; for the milk mixture, sixty minutes. On purely theoretical grounds, it would appear that when the acidity is low either small doses of alkalies or of hydrochloric acid are indicated, while in hyperacidity sodium citrate holds out the best hope of benefit. Protein digestion in the infant's stomach is slight and is proportional to the amount of hydrochloric acid in the organ. T. W. Clarke (American Journal Medical Sciences, June, 1909).

GASTRIC ULCER, MILK-FREE DIET IN.

A milk-free diet was tried in a case of two years' standing with entire success after the usual methods employed in the treatment of gastric ulcer had failed. The white of one egg was beaten up in a glass of cold water and sipped slowly; this feeding was given every three hours, and each day the dose was increased by one egg, so that at the end of two weeks the patient was getting the whites of twenty eggs each day—that is, the whites of four eggs to a glass of water every three hours. The pain gradually disappeared, she was able to lie on her right side, which was not possible before, no vomiting occurred, and marked mental improvement was noticed. The only medical treatment used was lavage with one pint of warm water, in which one-half ounce of sodium bicarbonate had been dissolved. One-half of this amount was allowed to remain in the stomach. Before each feeding of albumin water, she was given one-half teaspoonful dry on the tongue, of the following mixture:—

℞ Magnesiæ ustæ,
Sodii carbonatis,
Potassii carbonatis, of each, 5.0.
Sacchari lactis, 25.0.

On the fourteenth day, a meat juice preparation was added to the diet—and then gradually meat, eggs, vegetables and bread. On the forty-second day the pa-

tient was well nourished, enjoyed her food and had no pain for several weeks, no eructations of gas, the test meal showed normal acidity, and there was no tenderness over the abdomen, lavage made three hours after a meal found the stomach absolutely empty, and no symptoms of ulcer could be found. F. W. Foxworthy (Journal Indiana State Medical Association, June, 1909).

Book Reviews

Diseases of the Nose, Throat, and Ear and Their Accessory Cavities. By Seth Scott Bishop, M.D., D.C.L., LL.D., Author of "The Ear and Its Diseases; Professor of the Nose, Throat, and Ear in the Chicago Post-Graduate Medical School and Hospital; Surgeon to the Post-Graduate Hospital, and to the Illinois Hospital; Consulting Surgeon to the Mary Thompson Hospital, to the Illinois Masonic Orphans' Home, to the Chicago Hospital School for Nervous and Delicate Children, and to the Silver Cross Hospital of Juliet; formerly Surgeon to the Illinois Charitable Eye and Ear Infirmary, to the South Side Free Dispensary, and to the West Side Free Dispensary; one of the Editors of the Laryngoscope, etc. Fourth Revised Edition. Illustrated with Ninety-four Colored Lithographs and Two Hundred and Thirty Additional Illustrations. Philadelphia: F. A. Davis Company, Publishers, 1908.

The necessity for the fourth edition of this work indicates to a great extent its popularity among the members of the medical profession, and there is no doubt but that the new edition will receive deserved recognition, for the same high standard that was manifested in previous editions is here maintained. Although alterations, additions, and improvements have been made, the author has adhered to his original plan of presenting a book as compact as thoroughness and clearness would admit. Additions have been made to the description of Killian's operation for opening the frontal sinus, and the author's conservative method of employing compressed air in the treatment of the ear has been further elucidated. Siebenmann's treatment of adhesive inflammation of the middle-ear, and Grant's treatment of Ménière's disease have also received attention.

Although the plates appear rather high colored, they are very instructive and seem to well illustrate the lesion represented.—R. B. S.

Tuberculosis of the Nose and Throat. By Lorenzo B. Lockard, M.D., Laryngologist and Rhinologist to the Jewish Consumptives Relief Society Sanatorium, the Y. M. C. A. Health Farm and the Evangelical Lutheran Sanatorium; formerly Laryngologist to the National Jewish Hospital for Consumptives, and Member of the Board of Directors of the Agnes Memorial Sanatorium; one time Professor of Anatomy, Toledo Medical College; Fellow of the American Academy of Ophthalmology and Oto-Laryngology, etc. With Eighty-five Illustrations, Sixty-four of Them in Colors. St. Louis: C. V. Mosby Medical Book & Publishing Co., 1909.

"The main objects of this book are to place before the profession the modern views concerning the early recognition, the treatment and prognosis of the disease, in the hope that an increased faith in the efficacy of treatment and a full appreciation of the importance of early diagnosis and of routine examinations of the larynx in every consumptive will be engendered."

At the present time, when not only the attention of the medical profession, but also that of the laity, is focused on the heroic fight that is being waged against the white plague, especially in this country, a book which presents the modern views of any phase of this

malady, and which elucidates many uncertain points, is timely to say the least. The fact that the author has personally come in contact with a great array of cases, and that he has made liberal use of his vast experience, adds much to the value of the book. In the opening pages a brief historical sketch of laryngeal tuberculosis shows that even at an early date the significance of this condition was recognized, but that great difficulty was experienced in the differential diagnoses. This chapter is followed by the treatment of the subject from the various phases of clinical medicine. Many statistics have been compiled, and the author's familiarity with the literature is shown by his well-selected references. The book is written in a style which is clear and comprehensive, making it easy reading and no less interesting than a novel. The cuts, sixty-four of which are colored, are a valuable adjunct to the text.

While there is no doubt that many patients suffering from laryngeal tuberculosis can be greatly relieved, and may be cured, by rigid and conscientious treatment, still one wonders if the author's optimistic view of the ultimate results in these cases would be the same if climatic conditions in his vicinity were not so favorable to their improvement.

The only criticism worthy of note is the number of inexcusable typographical errors which are evident throughout the book. The work, however, can be highly recommended to those who are interested in the work.—R. B. S.

Dante—Physician. By A. G. Drury, M.D., Cincinnati, Professor of Hygiene in the Medical College of Ohio, Medical Department of the University of Cincinnati. Cincinnati: The Lancet-Clinic, 1908.

New historical facts are always of interest and deeply appreciated, and when they pertain to a man of renown, they usually excite considerable notice. In a small volume of some 89 pages the author has made an effort to prove that Dante was well versed in the science of medicine and perfectly capable of practicing the art. Although numerous quotations are submitted as evidence, in which this celebrated poet showed a liberal knowledge of medicine, the question arises as to whether he was any better versed in the science than the learned men of his time. To strongly substantiate the claim of the author, however, is the fact that Dante was supposed to have studied medicine in the University of Bologna, and later in the University of Padua, and that his name was in the register of the Arts of Physicians and Druggists from 1297 to 1300. In spite of existing uncertainties in regard to the medical education of this great Florentine poet, the review of his versatile character is the source of pleasant reading, and the small monograph under notice will, no doubt, appeal even to the general public.—R. B. S.

The Matter with Nervousness. By H. C. Sawyer, M.D., of San Francisco, Cal. San Francisco: Cunningham, Curtess & Welch, 1909.

We heartily recommend the perusal of this little volume by both physicians and laymen. It is full of wisdom, learning, pithy epigrams and homely illustrations. The literary style is peculiar, but good; so direct as to be almost bare, but forceful and clear.

This is a good book for the clergy to read. It will take only an hour or two the first time. If they will read it twice it will start the founts of reflection.—J. M. T.

Insomnia and Nerve Strain. By Henry S. Upson, M.D., Professor Diseases of the Nervous System in the Western Reserve University. With Skiagraphic Illustrations. New York and London: G. P. Putnam's Sons, The Knickerbocker Press, 1908.

Professor Upson has furnished much food for thought by this contribution to medical literature. He has set forth convincingly his experience and recommendations on the causes and treatment of various neuroses and psychoses as found in mental irritations. He advocates most wisely the fullest exploration of the condition of the teeth in all instances of mental peculiarities, whether simple or obscure, and, indeed, wherever there is any ground for suspecting possible involvement through dead or diseased teeth. Especially does he insist on x-ray studies and explains how they may best be made.—J. M. T.

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Clinical Lecture

ARTHRITIC MUSCULAR ATROPHY.

BY JOHN V. SHOEMAKER, M.D., LL.D.,
PHILADELPHIA.

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GENTLEMEN: The patient before you this morning is suffering from a disease, the etiology of which has not been clearly determined. The patient, A. R., is a male, aged 28 years; occupation, tailor.

Family History.—His father died at the age of forty-eight from an unknown cause. His mother is living and well and is fifty-three years old. Both his paternal grandfather and grandmother are living and well. They are eighty and seventy years old respectively. His maternal grandfather is living and well and is eighty-five years old, but the grandmother is dead, having died at the age of seventy.

Social History.—He is married. His wife is twenty-four years old and in good health. Three children are living and in good health.

Previous Personal History.—When a child he had measles, small-pox at the age of four years; typhoid fever at the age of ten years, and had polypi removed from his nose at the age of twenty-three years.

Habits.—His habits are generally good. He uses alcoholic beverages sparingly. He drinks one cup of coffee a day, and his sleeping hours are regular.

Present Illness.—He states that he was in perfect health until eight months ago, when he began to suffer with pain in his joints followed by cramps in the lower extremities, especially in the soleus and gastrocnemius muscles. He has pain and difficulty in walking, and when he lies down he is unable to

extend his lower extremities owing to severe pain and twitching of the muscles. His muscles show diminished bulk and contour and also diminished contraction to faradism and galvanism. The mechanical irritability of the muscles are increased and there is a corresponding contraction. The reflexes are exalted and in this patient ankle-clonus is observed. The wasting of the muscles in this patient is uniform from end to end and there is a corresponding loss of power. Outside of this the patient seems to be in good health; his appetite is good; bowels regular, and he sleeps well.

Diagnosis.—From the absence of degenerative reaction, increased mechanical irritability and presence of a joint affection we can easily diagnose this case as arthritic muscular atrophy.

Pathology.—In this disease the wasting of the muscles usually begins in the small muscles of the hand, but sometimes affects those of the shoulder joint and other joints. The muscles become pale, rather flabby and inelastic. This usually occurs in the extensors and is severe in proportion to the duration of the inflammation. There may be a little interstitial fibrosis and the muscle fibers are diminished in size. The muscle cells may proliferate quite extensively. The nerve trunks in the cord have been reported normal, but changes are found in the nerve terminals within the inflamed joint.

Etiology.—The cause of this affection is supposed to be due to the extension of an inflammation of diseased joints either to the nerves or directly to the muscles. Any joint lesion involving the articular filaments is competent to set up an arthritic muscular atrophy. The hypothesis that this affection is caused by a process acting through a reflex arc is accepted. That is, the irritation ascends to the spinal centers and disturbs the trophic control of those cells related to the muscle physiologically associated with the joint and located on the proximal side of the affected articulation. This affection may follow arthritis of traumatism, gonorrhœa and rheumatism, infectious arthritis and simple, acute or chronic arthritis.

Treatment.—If possible the cause should first be ascertained and removed. In this patient, I believe the cause of the atrophied muscles to be due to his arthritic condition, which is rheumatic in nature. Hence I will first give him ten grains of salicin every four hours until the rheumatism in his joints has subsided. If need be, I may later on employ other antirheumatic agents. Locally to the affected joints we will apply an ointment containing:—

℞ Unguenti belladonnæ,
Unguenti hydrargyri nitratis,
Adipis lanæ hydrosi, of each ..... ℥j.

Misce. Signa: Apply to the affected joints, cover with cotton and bandage. After the pain has entirely subsided we will turn our attention to the atrophied muscles.

Massage to stimulate the circulation and invigorate the dormant muscle fibers. Also passive exercise will greatly assist in restoring and developing the muscles to their normal size and capacity.

Electricity—faradism and high frequency—will have a synergistic influence and at the same time exalt the function of the tropic centers in the nervous system.

As soon as the muscles develop in size and gain in strength, systematic exercise and walking should be instituted. As a rule the muscles progress rapidly to complete restoration and function.

Original Articles

THE BORDER LAND OF SUCCESS—THE IMPORTANCE OF CAREFUL ATTENTION TO DETAILS IN EYE AND EAR WORK.

By L. HAYNES BUXTON, M.D., LL.D.,
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Professor of Ophthalmology, Epworth College of Medicine; Oculist to the Oklahoma State Baptist Orphanage and St. Anthony's Hospital, late Superintendent of Public Health of Oklahoma, and Secretary of Medical Examining Board, etc.

THERE is a land that is just over the hill from success, where live men with broken idols, men of education, men of many talents, *brainy men,* but men with broken hearts, because they never have fulfilled the ambition of life to reach the "Land of Success." They are just stranded on its border—but yet in the shadows of the "Failure Country."

Why is it that many who start out in life with golden prospects and opportunities should become stranded on the rocks so near the harbor of success? This paper will simply give *one* answer of the many to this important question.

The rock on which sinks many a well constructed craft is that of non- attention to details, the neglect of little things of business and life. Attention or non-attention to details reads success or failure, not alone in the practice of medicine, but in nearly or quite all of the undertakings of life. Professional men can learn lessons of profit from the successful manufacturing corporations of our land. The utilization of the waste by-products of former days has brought to many of these riches. Any fool can handle the so-called great events of life, but only the wise can see the importance of small things.

I issued certificates to practice medicine to over five hundred men when Superintendent of Public Health of Oklahoma. This gave me the opportunity of observing the careers of many in our profession. I was astonished not a few times to see men of splendid educational attainments fail, where, with equal astonishment, I saw the apparently superficial men go on to success. Many of these apparently illogical results would, if investigated, be found to be based on a failure of some of these otherwise well equipped men to pay attention to what appeared to them as the small things, to them, the unessential details; whereas these small things entered largely into the sum total of their lives. On the other hand, those who started with a poor chance, had gathered as they ran, from every wayside bush. To them there were no non-essentials, and as a result they grasped victory from defeat.

Primarily in the selection of the title of this paper I had in mind the importance of details in the successful treatment of pathological conditions, but I will diverge from the main line of thought and call attention to some of the elements of financial success in the practice of medicine.

The public judges much of a man's ability by his dress, his home, his associates and his office. His suit need not be of broadcloth—in fact, need not have cost over a dozen dollars, but it should be clean and fit well. A nasty doctor, with dirty hands, soiled linen, and a suit slobbered all over in front, need not expect a call into the homes of decent people, although he be as wise as Socrates. People do not have to employ such men in the twentieth century. The man who courts success does not have to live in a mansion, but his cottage and lawn must be well kept, clean and attractive. He must remember, also, that a man is known by the company he keeps, and must avoid the town toughs and try to make friends with the best persons in his community. He must remember also, as Benjamin Franklin said, "if a man keep his shop, his shop will keep him." His patrons should not have to look him up, when wanted, in a near-by card room or in any public loafing place. Many an office, not as important as that of a doctor's—a bank or a drug store—in opening for business, puts one or two thousand dollars into the fixtures, and considers that the money was not only well spent, but essential to success. They think a place of business should be attractive. Fellow practitioners, do we exercise good judgment in fitting up our offices? It is my opinion that if the average doctor would go to the bank and borrow five hundred dollars, put it into new carpets, new easy chairs, new pictures and other equipments to make his office look attractive, the investment would pay the first year. The successful man selects a good location. *Any place* will not do for *him*. He must and does find a way to get the best.

In closing this section of my paper, I want to say that a dirty, unswept, undusted doctor's office is a bid, and a successful bid, for a practice among the lowest elements of the city. The entrance to your office must be clean. Not so nasty that a servant girl will spoil her dress going there. Do you expect decent people to reach you through such filth? And yet many a man wonders why all the people are going to Dr. Jones, across the street, who never had half his experience and medical advantages.

In considering the direct subject, similar questions confront us. Why are some men of mediocre ability so successful in the treatment of cases, while others fail? Why do certain remedies in the hands of one man yield success, while they are discarded by his brother practitioner as being useless? My answer is that the *method*—the *how*, we use an agent to cure is as important as the selection of the special agent itself. I shall cite a few examples: Contrary to the usual custom, as well as contrary to ease, it has been my habit for years to treat a large percentage of my eye cases standing behind the patient. By this method you have perfect control of the patient's head; it cannot get away from you; there is no sudden jerking away of the head. Anyone who has had any substance, however mild, instilled into the eye, knows how tempting it is to dodge away. The conjunctival sac can be more thoroughly inspected,

cleaned and treated in this position than by sitting in front of the patient. Again, the head can be thrown back and the eyes can be flushed more thoroughly and to better advantage with the operator behind. The more vigorous and painful the treatment, as in "rolling" the lids in trachoma, and applying painful remedies, the more valuable does this position become. In diseases of the conjunctiva, nearly always, we prescribe a collyrium. The *method* in the use of these eye drops oftentimes, even in the hands of the profession, would be ludicrous, were it not so serious an error. The doctor has examined the case—the diagnosis is purulent conjunctivitis. He decides to use at first a saturated solution of boracic acid, and the prescription reads "Put in the eyes every two hours." At home the patient opens the palpebral fissure two mm., and a half dozen drops of the right solution are dropped into the eyes—no, not into, for the involuntary closure of the eye prevents over one drop entering the eye, and the remainder runs over the face. The doctors and the patient wonder why the eyes are not better, as such treatment is said by able men to be efficacious. Here is the secret of why so many cases do not respond to treatment. In a case like the above, show the patient in your office how to use the eye drops; tip the head back or lay him on a couch; make a cup of the eye at the inner canthus; pull the lids wide apart; raise them, and let the collyrium reach the most remote parts of the retrotarsal folds. After the whole conjunctiva has been bathed in the liquid for a moment, wipe the eye and tell the patient to go and do likewise, knowing that he will secure the desired results.

More errors are committed in this, an omission to properly treat the conjunctiva, than are generally known. It is not enough to direct *what* remedy should be used, but how to use it is equally as important. Cases of gonorrhœal ophthalmia have been sent to me with sloughing corneas, hopeless so far as saving the sight was concerned, cases which had had intelligent—in fact, the most approved—remedies prescribed, but the end was disaster because the proper treatment had not been thoroughly and carefully applied. It is not enough to squirt a little silver solution between swollen, half closed lids to save the eyes in this dangerous disease, but we should stop at nothing short of the thorough irrigation of the conjunctival sac and the application of the remedies to these perfectly cleaned surfaces. Again, in many cases of conjunctivitis, the conjunctiva of the lids are covered with purulent and mucous secretions, the retrotarsal folds are loaded with such material, and yet we expect that a few drops, or even many, will, by washing over such a surface, change the whole morbid process. *No,* such treatment will change nothing. Turn the lids back, and with a sponge of cotton, dipped in a solution, wipe the conjunctiva and retrotarsal folds free of all foreign material. Then, and only then, is your special medication ready for application.

Almost the same line of thought is applicable to the treatment of otitis media purulenta. Not all the cases of running ears can be cured by medication, but my experience is that many can be. I am curing fifty per cent. more of these cases and in a shorter time than early in my practice. The secret of success has been in cases that are curable by medication, to thoroughly clean all diseased surfaces and then apply the medication directly. This cleansing is

advantageous not alone for proper treatment, but as well for an intelligent diagnosis of the exact conditions.

This brings me to another phase of my paper, viz., the importance of attention to details in making a diagnosis. Often we see a case of a foreign body in the cornea or other part of the eye, which has been overlooked simply because of a superficial examination. Placing the patient in the proper light or turning the lid properly would have saved you the chagrin of having "the man over the way" do the work that you should have done. What do you see when you look into an ear? What *do* you see? Do you always know? Could you tell just what you saw? Was your speculum directed against the wall of the meatus? Was the ear full of cerumen or pus? Did you see a normal tympanum? All these questions should be answered at every examination of the ear, and many more besides these. One operator passes a case of slight disturbance of vision over with the remark that "in a few days all will be well, no doubt, after the use of these liver pills." Another, with his ophthalmoscope, sees in the retina the first symptom of nephritis or a grave brain lesion. Another is *unsuccessfully* treating a case of iritis, the other has discovered its *specific* cause, and his patient is singing his praises.

During my study in the clinics of Europe I was impressed, not with the superiority of the European surgeon over the American in dexterity, general knowledge or rapidity of work, but with his attention to the details of his cases. To him, time is nothing if he may attain the end desired. He goes to the bottom of everything. He is slow in making a diagnosis, and writes no prescription until he knows all that the history of the case will yield. In a few cases he is too slow, we are too fast in many.

The object of this paper is more to awaken thought upon this subject than to give any specific instructions as to details in eye and ear work. My endeavor was to make it of interest to the general practitioner. It is the patient, careful study of the minor symptoms, if there be such, of our cases, and the equally systematic and thorough application of such remedies or agents as we may decide to use, that cannot fail to bring satisfactory results to both ourselves and our patients. *Perfection is made up of trifles, but perfection is no trifle.*

SEVERE TYPES OF TYPHOID FEVER WITH MANAGEMENT AND TREATMENT.

By B. L. HALE, A.B., M.D.

In this paper only the severe cases are taken as they are more worthy of study. Should we desire, we could take the more favorable cases and make the report very favorable indeed.

In this we will show how a country doctor works in the country, where he is thrown upon his own resources.

We are not quoting authorities, consequently there will not be paragraphs copied from text-books. It occasionally occurs that the physician is taxed to

his utmost in his efforts to make a diagnosis of typhoid fever. There is no trouble about the typical cases as many of the laity can often diagnose these. It is possible that physicians themselves will sometimes disagree as to diagnosis. If called early in the case we first cinchonize the patient, and if this has no effect taken together with other symptoms, we then treat as typhoid. When placed upon the typhoid basis there is usually a moderation of the symptoms. No set rule can be rigidly fixed for treating and feeding a case of typhoid fever, but each individual case must be taken on its own merits and studied, treated, and fed as an individual case.

In one case meat broths provoked an uncontrollable diarrhœa, while placing the patient upon toasted bread with butter checked the diarrhœa at once.

Another case, a child of nine years, after the fever had left, had a wild delirium, tossing from side to side, which was diagnosed as starvation delirium. We fed her anything to get her to eat, and when the stomach was once filled she gave no further trouble.

Whole milk we do not like as a rule, but there may be cases where it is advisable. Buttermilk is to be preferred, but too much of it will cause bloating of the bowels.

The broths made from the wild games, such as the squirrel and birds, is better than that made from the tame meats, as it is free from the strong oils and fats found in the tame. The wild birds that are best are the dove, blue-jay, quail, plover, and the prairie chicken. When any bird or fowl is used to make the broth, always skin the bird or fowl, taking only the leanest parts. Make the broth, let it stand until cool, then skim off the fat globules that congeal on top. Any other broth is treated in the same manner. Gelatine made from fresh beef bones kept cool may be heated when wanted, diluted with water and drank. Season it to suit the taste of the patient.

Well-ripened watermelons are relished by the patients and are usually beneficial.

Albumin water is an excellent thing and may be prepared as follows: Take a piece of thin, clean muslin, place it over a clean glass, break the white of one egg upon it, squeeze the albumin through the meshes of the cloth, taking out all shell particles and break up the albumin sufficiently so as not to require beating. Now add soft water until not stringy, then add sugar, salt and whiskey to suit the taste of the patient. The whiskey is used for flavoring, but any good flavoring extract may be used. The juice of the lemon is good, this makes egg lemonade. The albumin water may be taken freely.

If crackers are used for food they should be browned in a hot oven first. When toasted bread is given to the patient it should be cut thin and browned all the way through. It may then be served as milk or cream toast or as sweetened water toast.

When meat juice is desired take one or two pounds of lean steak, chop it fine, put in a rice cooker (do not put any water on the meat), let it simmer for three or four hours, strain out the juice and let the patient drink such quantity as is desired. It may be seasoned to suit the taste of the patient. As to the

administration of solid foods, the physician in attendance must use his own judgment, having the case and all the circumstances in hand.

See that the patient gets an abundance of pure water. This may be given by ordering a half glass following a dose of medicine every two hours.

Among the fruit juices, orange juice may be given as it agrees with most patients. To prepare, squeeze out the juice, strain through clean muslin, give as desired. The juice of one or two oranges in twenty-four hours will not be too much. With some patients orange juice is too laxative. The juice of cooked or canned fruits may be given in limited quantities.

When feeding a patient, bring out a variety of foods on the platter; one small bit of toast, broth, fruit juice, milk and coffee. Make it appear as a meal.

So far as medicines go, each case must be taken on its own merits. In low states the medicines may be administered hypodermically, we think this best.

Spartein sulphate and caffein citrate are very good stimulants and very good diuretics, both may be given hypodermically. Calomel is good in the beginning. In the last stages of bad cases when the fever is gone and the mouth very dry give one-half grain of calomel three times a day till you get a slight degree of salivation; this will restore the secretions of the salivary glands. Whatever may be said of intestinal antiseptics it is preferable to give them; as to which one, is left to the choice of the physician. The ones that are least poisonous and still good are menthol and thymol, they are best given in combination. Urinary antiseptics should be used, hexamethylenetetramin is the best. It is absolutely unnecessary to give febrifuges, the administration of the various coal-tar products is undoubtedly harmful. In the beginning of a case, or of suspected cases, do not give acetanilid for the headache, but instead give salicylic acid and apply cold applications to the head. The heart should not be taxed by medicine or otherwise at any time during the illness.

The venders of patent and proprietary medicines will tell you how their medicines cut the fever down to three weeks' duration. The management of our cases for the past eleven years show an average of three weeks' duration and without the use of the much lauded proprietary remedies. One man whom I met boasted of a certain reputed cure as being first, last and all the time with him; the same season later on he lost five cases out of one family.

But little medicine or food is given during the night, lights low, everything quiet, to let patient rest. There are cases that human ingenuity cannot save; they take sick to die. At the same time, with proper care and careful management many desperate cases may be saved.

In regard to the bath we have always used the sponge bath, the wet pack, and the ice pack. To properly give a sponge bath, remove all the clothing and sponge the ventral surface systematically, taking the lower limbs first, then the upper limbs, finishing over the abdomen and sides. When sponged sufficiently, turn patient on side and sponge the dorsal surface in the same manner; always sponge until the moisture stands out on the surface, then, without drying, replace clothing. The evaporation that takes place from the moisture on the surface will cause a further reduction of the temperature.

Repeat the bath every hour or two until the temperature is sufficiently

reduced. A temperature of 101° or 102° will not require very much bathing. Bathing is usually suspended when hæmorrhage appears. As a rule, when the sponge bath would control the fever the patient recovers. This is also true of the wet pack. To give the wet pack, wring a sheet out of cold water and wrap round the patient; repeat as often as the sheet gets dry. Two patients we kept in wet pack for 48 hours before the fever fell; both cases recovered. The wet pack is not used unless the sponge bath fails. If both of these methods fail, we then use the ice pack, which is done either by ice-bags or ice poultice over abdomen. So far in those cases in which it was necessary to use the ice pack, the disease was of such severity that the patient died; it was used in two cases.

To control nervousness the alcohol bath is employed; the strength varying from 25 per cent. to 50 per cent. In one case it required 95 per cent. This bath is given as a sponge bath. In giving these baths the water is usually tempered to suit the feelings of the patient. Some patients will stand a cold bath; some will enjoy the ice rub, and some will refuse the bath entirely. The room should be made as bare as possible, removing all carpets, curtains and hangings, pictures, etc. Mop the floor at least once a day. Have two narrow beds in the room and change the patient twice a day, morning and evening. All spoons, vessels, dishes, etc., must be looked after carefully; rigid cleanliness will go a long way toward abating the fly nuisance.

An error is probably sometimes made in mistaking typhoid fever for malarial fever, as one case we had early in our career. A young man was taken sick with a fever that lasted for three weeks; was never very bad; at the end of three weeks the fever broke for four or five days when fever returned, and it lasted another three weeks. We called this malarial fever but when he recovered and was going about we noticed his dry, frizzled hair, all of which came out; we concluded that we had made a wrong diagnosis and were more careful afterwards. This same mistake is made by others, as we have observed, only very few ever acknowledge their error.

Case I.—G. Mc., male, clerk in hardware store, age 38. He had been an alcohol addict, but had taken the cure several months previous to illness and at this time was sober. He gave the history of having had typhoid years before at Philadelphia, when traveling with a circus. The present attack was complicated with pleurisy with effusion. He gave the characteristic clinical symptoms of typhoid, even to the shedding of the sloughs from the bowels. We were first called June 17, 1903, and he left us August 21st. At that date he was doing well, was well nourished, kidneys and bowels acting nicely. We tapped the affected pleural cavity and drew off some of the fluid, which gave no evidence of pus. Others did a rib resection and, by some means, he became infected, his health grew worse and he never fully recovered. We afterwards treated him for about two years washing out the cavity in his side four or five times per week. He is still alive but his condition we do not know. We treated him last in September, 1907; neither tuberculosis nor typhoid bacillus were demonstrated in fluid from pleural cavity.

Case II.—I. L., female, age 7. Healthy child previous to sickness, was sick during July, 1906; was never very ill; fever moderate. The worst

feature of the case was continual pain in bowels. In third week she had intestinal hæmorrhage when all symptoms gave way and she gave every promise of an uneventful recovery, when one evening, about 6 P.M., her father, who had been entertaining her, left the room for a few moments when he returned she knew nothing—was insensible. I was called at once and, when I reached the bedside, I pronounced it a case of cerebral embolism. The right half of the body was affected, being in a tremor or continuous twitching accompanied by coma and paralysis. She never regained consciousness, and died the following day.

CASE III.—G. H., male, farmer, age 39. Previous health good; family history good; was sick during July, August and September of 1906. He had severe gastric pain, vomiting, diarrhœa. At one time the appendix was involved. During third week he had a severe intestinal hæmorrhage, and this was followed by severe tympanites. I used all the recognized remedies: such as turpentine, glycerine, asafœtida, etc., but without avail. Consultation was called for and a learned old physician was called in to aid us, but he offered no hope; in fact, he said that every patient he had ever seen bloated around the stomach, as this one was, died. After he left it was plain that the man was going to die as the tympanites were crowding his heart and lungs, so being left alone I decided to stay, and do or die. After studying the case over it occurred to me to use alum solution which I did. At 8 P.M., I gave colonic injection of two quarts of alum sol., putting about one ounce of alum to the quart of water, using a soft rubber colon tube. In a short time after the injection the water and the gas both started. Previous to this the water would come away alone. He passed gas at intervals all night; in fact, every time he moved he passed gas so that on the following morning he was about one-half reduced and at 8 A.M., I repeated the injection. This brought him down to normal and we had no further trouble along that line. By this time he was very weak and very reduced, his stomach and bowels both having given so much trouble that it was with the greatest difficulty that we ever got him back on anything like nourishing food. We fed him for three weeks on albumin, water, liquid peptonoids and similar foods before we could feed him. This made his recovery very tardy but when once on solid food he gained rapidly. To-day he is a rugged farmer.

CASE IV.—M. B., age 18 years, single, female, farmer's daughter. Was sick during September, 1906, when first seen she had a temperature of 103°. The family reported that she had been complaining but a few days. She looked as if she might have been sick for two or three weeks. There was no regularity about her temperature, other symptoms were also irregular, so that we were in doubt until hæmorrhage came on, of which she had several severe ones. On the seventh day after the first call she had her first hæmorrhage. She was delirious the first week and more or less comatose throughout the second week. She seemed completely overwhelmed with the typhoid poison. From the first she complained of a lump in her stomach, could take no food, would drink no water, and only with greatest difficulty did we get her to take any medicine. In order to get water in her system we used a long colon tube, and injected a quart of water morning and evening; the water was always retained.

Her kidneys were extremely bad, acting slowly and sluggishly. Her temperature persisted at 104° with a weak heart. We at first controlled the fever with the sponge bath, but towards the last it required the ice pack. The night she died we got her temperature down low and she seemed to be resting. I went to bed about 10 P.M. and was called by the nurse at 1 A.M. The fever had suddenly jumped to 105°; we saw at once that it was useless to work further as collapse was coming on. She died about 4 A.M., on the fourteenth day after making my first visit. We gave normal saline under the skin.

CASE V.—L. R., age 38, housewife, the mother of 8 or 9 children. She first had an attack of renal colic; this passed off and she appeared to recover. This attack lasted two or three weeks during which time there was no fever. I told the husband I could not tell how much of her sickness was due to typhoid infection and, she being an old epileptic, I warned him that she was not a fit subject for typhoid. After apparently recovering she later developed typhoid fever that was marked, and this was complicated by a severe pneumonitis; her kidneys acted poorly, and her bowels were stubborn. She would take unconscious spells, and at one time lay in this state for 97 hours. During these spells ordinary enemata would have no effect. At one time she took one gallon of water per rectum during one night; it was all retained. We then fell back on our alum solution which never failed. When she was unconscious it would take the alum solution about one hour to act. Her temperature persisted high and required the ice pack to reduce it. After the reduction it rose again and persisted high, being uncontrolled by the ice pack. She died in the third week; her death appeared to be due to the pneumonia.

CASE VI.—E. D., age 18, female, unmarried. Was sick 9 weeks, vomited from the beginning almost continuous, only one or two short intervals of two or three days each when the vomiting was absent. In the vomit was a peculiar green material which we made out to be chlorophyl, produced by the "hydra-viridis" which belongs to the animal kingdom. Her fever never was high, she had hæmorrhage. We used salines hypodermically and per rectum. She was very nervous and a mild delirium was present part of the time. The nervousness was best controlled by alcohol baths, full strength acting better than the dilute. We gave her inunctions of olive oil after the fever was gone, she died apparently from exhaustion, having had no fever for a week or ten days prior to her death. When the time came for her to take nourishment we couldn't get her to take sufficient of anything. We tried every device and all sorts of nourishment, but without avail. We gave her one-half grain codein sulph. hypodermically every night to produce sleep. It acted nicely. She died at the end of the ninth week.

CASE VII.—F. W., male, farmer, married, age 25. Was called in consultation October, 1908. The night that I first saw him hæmorrhage had occurred. Up to this time the attending physician reported a mild case. I found the patient with a very weak pulse. We gave him about one pint of normal saline solution by hypodermoclysis. I worked on this case with the attending physician for ten days. His hæmorrhages were repeated until he had ten in all. He became very delirious, requiring four or five strong men to hold him in

the bed. On November 4th, he was reported as possibly having hydrophobia, having been bitten by a dog two or three months previous. The attending physician asked me to go out with him; we found him having convulsive seizures, though apparently rational as he recognized us. After giving him a drink of water as a test, producing no convulsions we decided he had no hydrophobia and so informed his friends. We both stayed and worked with him all day and, from 10 A.M. until 9 P.M., he received in all two and one-eighth grains morphine sulph., and without apparent effect. We went to town about 4.30 P.M., and at 8 P.M. I was again called, found four or five stout men holding him. Having him all to myself I carried out my own ideas which was the best I could do, and with the aid of the nurse we gave him chloral and gelsemium per rectum and I proceeded to put him to sleep with chloroform. The family being Catholics they of course prayed, about twelve or fifteen of them, as hard and as loud as they could, which was right. The patient raved like a maniac, while the nurse and I worked as hard as we could work. His friends prayed for a speedy death, and for a while it looked as if the prayer would be answered. This I will say was the most weird experience of my life. The chloroform following the morphine brought about two and one-half hours' sleep and as soon as he would wake I would put him to sleep again and carried him through the night very well and the following day he slept nearly all day. This followed up by gelsemium controlled the convulsions. He then went to the other extreme, and became very weak and helpless, and lay this way hovering between life and death for about two weeks, when he began to rally and gradually pulled himself together until he recovered. He is to-day healthy and strong. As soon as he was better I ceased my attentions and left him in the care of the attending physician. At the time of the hæmorrhage we kept his bowels from moving for about one week with the exception of the hæmorrhages, and at the end of this time we decided the bowels must move. The attending physician and nurse thought this would kill the patient. However, we gave him eight ounces of glycerine in water, q. s. ft. two quarts, gave it per rectum, got a nice movement, then administered calomel and castor oil per mouth. The movements brought forth scybala in plenty and after the bowels were thoroughly emptied we had no further hæmorrhage. We then decided that the scybala had much to do with the hæmorrhage. His mouth and throat were exceedingly dry, there being no secretion, but we kept him on calomel until we had a free flow of saliva. This man was the most grateful patient I ever attended, and instead of kicking on the bill said if he was able he would pay me more.

Conclusions: 1. We believe alum solution to be the best intestinal irritant we have at our command.

2. In low cases the alcohol bath is a necessity.

3. Saline solution by hypodermoclysis and per rectum is of great benefit.

4. In bad cases do the heroic and make a stand to save your patient.

5. In hæmorrhage, if the bowels are hard to keep quiet or if the hæmorrhage is repeated often, move them.

6. Urinary and intestinal antisepsis are both demanded.

7. In an active mild delirium chloroform inhalations may prove beneficial.

8. Delirium exhibited by fear may be allayed by gelsemium.

9. Ergot is used in every case of hæmorrhage either hypodermically or per mouth, the hypodermic method preferred.

10. All our death losses so far have been females, average age 20¼ years, and 7 per cent. of all cases.

11. The physician that attempts to cut short an attack of typhoid will have a funeral.

ACTION OF GLANDULAR EXTRACTS UPON THE PUPIL.

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Meltzer,[1] was the first to show that adrenalin dilated the pupil when locally applied to an eye twenty-four hours after extirpation of the superior cervical ganglion. Meltzer holds that the ganglion sends out impulses which inhibit the dilator and excite the constrictor elements of the iris. He holds that adrenal extract does the reverse—excites the dilator and inhibits the constrictor part of the iris.

O. Loewi[2] found on cats and dogs, twenty-four to sixty-five hours after extirpation of the pancreas, a marked and strong dilation of the pupil by adrenalin. This ensued in dogs in 20 to 60 minutes after the instillation into the eye and lasted six hours. In a comparison of the effect of adrenalin on dogs or cats with pancreas removed, the adrenalin dilated the pupil less than in animals with the superior cervical ganglion extirpated. He believes that adrenalin mydriasis is due to removal of an internal function of the pancreas, which reduces the irritability of the sympathetic nerve elements.

W. Cramer[3] noted that extracts of the posterior lobe of the pituitary body of the ox produced a distinct dilatation on the pupil of the enucleated eye of the frog. The principle is distinct from that body in the pituitary which produces diuresis. Ott and Scott[4] have shown that pituitary in the rabbit dilates the pupil after removal twenty-four hours previously of the superior cervical ganglion. It was used locally, by the jugular, and subcutaneously. In the normal eye no effect ensued. Pituitrin has the same effect, showing it is the infundibular part that dilates the pupil.

Shima[5] under A. Kreidl's direction found as the result of an operation on the brain that between the anterior part of the cerebrum and the sympathetic

1 American Journal of Physiology, vol. xi, 1904, p. 28.

2 Archiv. für Experimentelle Pathologie, Band 59, Heft 1, p. 86, 1908.

3 Quarterly Journal of Experimental Physiology, vol. i, p. 187, April, 1908.

4 "The Effect of Mammalian Pituitary on Tetany after Parathyroidectomy and upon the Pupil." New York Medical Journal, December, 1908.

5 Pflüger's Archiv., Band 126, p. 269.

of the cat, there was a close relation when adrenalin was instilled into the eye. He believes that in the frontal lobes there is an inhibitory mechanism of a sympathetic nature. Shima[6] also found that adrenalin dilated the pupil after transverse section of the spinal cord, as low as the exit of the seventh thoracic nerve. Transverse section of the cervical cord also permitted adrenalin to dilate the pupil. Here the operations were upon the ciliospinal fibres.

Dr. W. H. Schultz[7] has shown that adrenalin dilates the pupil of the normal eye provided the intensity of the light stimuli is reduced. He used two drops every two minutes; and in several animals obtained considerable dilation.

Our experiments were made upon rabbits. The left superior cervical ganglion was excised under ether. The extracts were then rubbed up with distilled water and dropped into each eye. The intensity of the light was regulated so as to be about the same. We waited twenty-four hours after the excision of the ganglion before any observations were made. The rabbit was placed upon a table and permitted to run about. The diameter of the pupil was measured with a pair of compasses. The number of our experiments was thirty-two.

Pituitary extract had no effect upon the normal eye. On the eye with the superior cervical ganglion removed, it dilated the pupil. Pituitrin also dilated the pupil on the side where the ganglion was excised.

Parathyroid nucleo-proteid on the normal eye dilated the pupil; on the excised ganglion side it at first contracted, and then dilated it.

The ovary, thymus and mammary gland had no effect upon either pupil.

Parotid and testicular extract contracted the pupil on both sides.

Iodothyrin dilated the pupil upon the side of the excised ganglion, but had no effect upon the normal pupil. The dilatation was preceded by a slight contraction. The amount of contractions with the extracts was about a millimeter, the dilatations about two millimeters.

That the cervical sympathetic and oculomotor nerves are separately or jointly acted upon, by the active principles in these glands, is evident. As to the exact mechanism of this act, it is speculative. It is quite evident that the pupil test in the frog or mammal for the presence of adrenalin in the blood is of very doubtful value in the presence of the other internal secretions which dilate the pupil.

Appended are some of the experiments upon the pupil:

Exp. 35.—Parathyroid nucleoproteid on pupil. Left superior cervical ganglion extirpated:—Rabbit.

	L.	R. Normal.		L.	R. Normal.
P.M.	Millimeters.	Millimeters.	P.M.	Millimeters.	Millimeters.
12.05	6	6	12.40	8	7
	Applied to both eyes		12.45	6	7
12.10	5	7	12.50	6	7

[6] Pflüger's Archiv., Band 127, p. 109.

[7] Proceedings of the Society for Experimental Biology and Medicine, 1908, p. 23, vol. vi.

P.M.	L. Millimeters.	R. Normal. Millimeters.	P.M.	L. Millimeters.	R. Normal. Millimeters.
12.15	5	7	12.55	5	7
12.20	5	7	1.00	6	7
12.25	7	7	1.10	6	7
12.30	7	8	1.20	6	7
12.35	8	8			

Exp. 16.—Pituitary on pupil. Extirpation of superior cervical ganglion:—Rabbit.

P.M.	L. Millimeters.	R. Normal. Millimeters.	P.M.	L. Millimeters.	R. Normal. Millimeters.
2.45	7	9	3.10	7	9
	Applied to both eyes		3.15	7	9
2.47	8	9		Applied to both eyes	
2.50	8	9	3.17	8	9
2.55	8	9	3.19	8	9
3.00	8	9	3.29	7	9
3.05	7.5	9	3.34	7	9

Exp. 23.—Iodothyrin on pupil. Extirpation of left superior cervical ganglion:—Rabbit.

P.M.	L. Millimeters.	R. Normal. Millimeters.	P.M.	L. Millimeters.	R. Normal. Millimeters.
2.35	7	10	3.07	7	10
	Applied to both eyes		3.10	7	10
2.36	7	10		Applied to both eyes	
2.40	6	10	3.10.30	8	10
2.50	7	10	3.11	6	10
3.00	7	10	3.15	6.5	10
	Applied to both eyes		3.20	7	10
3.00.30	8	10	3.24	7	10
3.01	8	10	3.25	7	10
3.02	7	10	3.30	7	10
3.03	6	10			

THE ANTIDOTAL EFFECTS OF ALCOHOL UPON PHENOL.

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Phenol or carbolic acid is one of the most deadly and rapidly acting poisons known. If a large lethal dose be swallowed by a man, he may drop dead before he can go a few feet from the spot where he stood when drinking the drug, or he may live a few hours. With the suicide it is exceptionally popular, probably on account of the ease with which it can be obtained. Then

again, in many households, a bottle containing carbolic acid can be found near other medicines and is often taken by mistake. It is, therefore, no wonder that so much stress and attention should be directed towards this one poison, particularly with the purpose of finding a thorough antidote. Within recent years a number of antidotes have been suggested, but none have become so well known and generally used as alcohol.

The first suggestion of the use of alcohol as an antidote to phenol or carbolic acid was made by Dr. Seneca D. Powell, of New York City. He proved that as a result of some great antidotal power of alcohol, no injury would result from immersing the hands in pure phenol, provided they were immediately afterwards washed in absolute alcohol. From this and other experiments of a similar nature, he concluded that alcohol might be used internally in cases of phenol poisoning; but this has proved ineffective, since strong alcohol cannot be used internally and when diluted its antidotal power is lost.

Externally however, apart from its use in accidental phenol burns, the surgeon often applies alcohol to neutralize or stop the corrosive action of the phenol with which he has swabbed an infected wound, or touched the stump of a gangrenous appendix. In fact, it is claimed to be so perfect an antidote, that the wound previously white from the corrosive action of the pure phenol, will return to its normal color after the use of strong alcohol. How it acts as an antidote to phenol is still a subject of discussion and no one has as yet satisfactorily explained the peculiar phenomena which take place when alcohol is applied to the tissues affected by phenol. Now and then theories are advanced, one endeavoring to prove that the alcohol acts upon the tissues, while another suggests that it affects the phenol chemically thus rendering it inert.

The adherents of the chemical theory believe that the result of the reaction is "a new phenol benzine or aromatic compound having the chemical and therapeutic properties of alcohol." It has been overlooked, however, that this new aromatic compound, or, better still, solution as it should be called, also has the chemical and therapeutic properties of phenol. Although dilution decreases its corrosiveness externally, it still does not in the least lessen the result of a lethal dose when taken internally, no matter with how much alcohol it has been diluted. The addition of a small quantity of alcohol to pure phenol will increase its corrosiveness externally, which would be impossible should alcohol have any neutralizing action. This is due to the more rapid absorption of the slightly diluted phenol.

Phenol is freely soluble in alcohol and, when the two are mixed, no chemical change can in any way be detected. They are merely in a state of mixture or simple solution and are as easily separable as a solution of salt in water.

Experiment No. 1.—Equal quantities of phenol and alcohol were placed in a distilling flask. The boiling point of alcohol being much lower than that of phenol, it was possible to distill from the solution all of the alcohol before

reaching the boiling point of phenol. Comparing the phenol residue in the flask with some of the unused material, not the slightest change could be determined.

First.—No two chemically united substances could have been so easily separated.

Second.—It is almost entirely impossible to have chemical union without the presence of at least one of the phenomena that accompanies a chemical reaction, or some slight alteration in either one or all of the factors entering into the chemical combination.

When the application of phenol to the tissues is followed by the use of alcohol, noteworthy changes occur. Pain is lessened, corrosive action ceases and all visible traces of the phenol disappear. To what can we attribute this great antidotal power of alcohol? Some believe that "the alcohol in some way affects the tissues, thereby lessening the destruction that would otherwise follow." It is a known fact that after the cells of any part of the body are destroyed by the powerful action of phenol, neither alcohol nor any other drug in existence can have much effect. It would also be ridiculous to believe that the dead cells have been repaired because the color of the tissue returns to normal after the use of alcohol.

Excluding the chemical as well as the theory that alcohol produces its antidotal action upon the tissues, there still remain a few physical phenomena that are worthy of consideration.

Experiment No. 2.—(*a*) A piece of ordinary newspaper was moistened in the centre with a very little phenol, and allowed to be absorbed. Alcohol was then applied to one side and gradually minute globules of phenol collected on the other side. As soon as the alcohol evaporated the phenol was reabsorbed. Alcohol was again applied to one side and the result was that the phenol reappeared upon the opposite side of the paper.

(*b*) Two blisters were made upon the flexor surface of the forearm. The surfaces of both blisters were repeatedly painted with phenol. Alcohol was then applied to the first and after withdrawing the fluid by inserting the hypodermic needle at a point not touched by the phenol, it was found to contain phenol that was easily discernible by taste. No trace of the phenol was found in the fluid of the blister upon which the application of the phenol was not followed by the use of alcohol.

There is no doubt that the alcohol must have had some special action upon the phenol in causing its appearance in the fluid of the blister. When a drop of alcohol is placed on a glass plate near a drop of pure phenol, it is noticed that the latter recedes or moves away from the alcohol as soon as the two have come sufficiently near, though not necessarily in contact with each other. This peculiar phenomenon can no doubt account for the repulsion of the phenol to one side or the other of the paper, as well as through the epidermis of the blister, causing its presence in the fluid.

It would be sufficient to state from the above phenomena that alcohol has the peculiar property of repelling phenol, but let us see if we cannot through molecular study get some enlightenment as to the origin of this property.

Evaporation is a property of alcohol and phenol as well as of all other

liquids and in the molecular sense of the term, it is a rapid separation of the molecules of a liquid exposed to the air, being dependent upon other various conditions. Not all liquids evaporate with the same rapidity, on account of, not only the variations in size, but also the arrangement of the molecules in different liquids. The molecules of alcohol are of such size and arrangement that they separate more readily and forcibly than do those of phenol and from the fact that the drop of phenol recoils from the alcohol even before visible contact has occurred, it stands to reason that what has been given off from the alcohol to so affect the phenol, cannot be other than an infinite number of molecules.

Although both the alcohol and phenol have large intermolecular spaces, which accounts for the decrease in volume when equal quantities of alcohol and phenol are mixed, still the molecular arrangement of the phenol is such as to present a suitable surface upon which the forcibly evaporating alcohol molecules can strike, thus producing repulsion. As soon as a sufficient number of molecules have been absorbed by the intermolecular spaces of the phenol, mixture will take place despite the fact that repulsion is the primary effect.

Alcohol has the same effect towards any other liquid whose molecular size and arrangement render it capable of receiving the rapidly evaporating alcohol molecules directly upon its surface instead of entering into the spaces of that liquid. A molecule of alcohol in striking against one of water, not only has very little of its repellent power utilized, but is easily and readily absorbed by the intermolecular space, due to the molecular arrangement of the water.

The lower the strength of the alcohol, the slower the evaporation and lessened repellent power, hence the ineffectiveness of weak alcohol as an antidote to phenol.

Not only alcohol, but any other rapidly evaporating liquid whose molecules are of sufficient size, will produce the same effect upon phenol, except to a variable degree.

Is it possible that alcohol depends upon its solvent and repellent properties for its peculiar antidotal power? This seems quite evident from the fact that the addition of water to either the alcohol or phenol, by affecting these properties, greatly disturbs their antidotal relations.

Experiment No 3.—The hand was immersed in pure phenol and then immediately afterwards in strong alcohol. With the exception of a slight numbness, no injury resulted. The alcohol in which the hand was washed, was then put into a distilling flask, as in experiment No. 1, and a small quantity of phenol obtained, showing that the alcohol acted as a solvent, not by changing the phenol chemically. Anæsthesia was the result of a very minute quantity of phenol being forced into the pores and other fissures in the skin by the active alcohol molecules. Phenol being a very corrosive poison, how are we to account for the fact that no injury results to the hand when alcohol is used subsequently? If a sensitive photographic plate is exposed for a fraction of a second in a light that naturally requires twenty times as much, no change will be noticed in that plate when developed; but this would not prove the plate insensitive to light. When the hand is exposed for a few seconds to

the action of pure phenol there is no reason why injury should result, if the phenol is almost completely removed by the alcohol long before it begins to act. Not all corrosive poisons act upon the skin within the same time. Phenol produces no change until it is allowed to act for almost fifteen or twenty seconds, depending upon the tenderness of the skin. When removed before that time, by as thorough a solvent as alcohol, no injury results to the hand.

Experiment No. 4.—Pure phenol was applied to different areas of the forearm and removed by washing with alcohol after being allowed to act first for five, then ten, and finally fifteen seconds, without the slightest injury resulting. At the end of thirty or more seconds, the effects of the phenol became noticeable. At the end of one, two and three minutes, the inflammations produced were all severe and alike, repair taking place in all within the same time.

Using water instead of alcohol to remove the phenol, the results obtained were very much the same with the exception that at the end of thirty seconds, one, two and three minutes, the inflammations produced were similar to each other as well as to those produced when followed by alcohol at the end of one, two and three minutes. At the end of thirty seconds the water is incapable of thoroughly removing the phenol, hence a severe inflammation results.

Phenol, as well as any other corrosive, requires a definite time before it can produce injurious results, and, if removed at any time before that limit, there will be no injury.

After the phenol is allowed to act upon the skin for a minute, it coagulates the albumin of the tissue, making a film through which the excess of the corrosive cannot pass to produce more injury than has already been done.

Water does not affect the blanched condition since it is unable to penetrate the albuminous film, although it dissolves out the phenol superficially. Alcohol, however, by its power of diffusion or repulsion, sends the small amount of phenol in the coagulum deep into the tissues where it is absorbed. The alcohol molecules in passing through this film like so many fine needles, render it sieve-like, so that the tissue resumes its natural color, although the resulting inflammation is the same as when water is used, except when the alcohol is used early.

Experiment No. 5.—The mucous membrane of the lip was touched with a drop of pure phenol. Within a few seconds a white spot appeared. Applying strong alcohol, the white spot gradually disappeared. The explanation given for this peculiar phenomenon is that "the alcohol in some way affects the tissues, thereby lessening the destruction that would otherwise follow, and drawing water to the surface, redissolves the coagulum." The fallacy of this statement is at once noticeable, since it is well known that the water which the alcohol may draw to the surface cannot dissolve coagulated albumin unless the necessary ferments are supplied to digest it. Just as in experiment No. 2 the phenol was repelled to one side or the other of the paper and even through the epidermis of the blister, so here the phenol was diffused by the alcohol deep into the mucous membrane where it was absorbed by the blood-vessels. The alcohol instead of drawing water from the tissues, repelled

from the surface not only the phenol, but forced the other fluids such as blood, lymph, etc., somewhat away from the surface. No doubt this may be the cause of the peculiar wrinkling of the mucous membrane when alcohol is applied to it. This action which at first repelled the blood, finally gave tone to the blood-vessels so that the blood rushed to the surface. When it came just beneath the thin film of coagulated albumin, the appearance was red. Although the albumin still remained, yet it was not as solid as before, for the alcohol in passing through, rendered it more or less sieve-like, thus showing the color of the tissues below.

The mucous membrane of the lip was again touched with a drop of pure phenol and after a few seconds, water was used instead of alcohol. Within a few minutes the white film disappeared almost completely. The film being very thin, it was possible by using moderate friction, to remove the phenol imbedded in this superficial film. When the phenol was allowed to act for a minute or more, the film became too thick for even the alcohol to penetrate it. After a few hours both spots appeared the same, not only being equally inflamed, but healing took place within the same time.

When an infected wound is swabbed with pure phenol, it becomes covered with a film of albumin which gives it a white appearance, just as the mucous membrane of the lip in the last experiment. Corrosive sublimate combines chemically with the albumin of the cells, forming an albuminate of mercury. Phenol, however, acts like heat and, after coagulating the albumin of the tissues, still remains as pure phenol on the surface. When strong alcohol is applied, the wound returns to its original color and to all appearances the phenol has been completely antidoted. The following is what really occurs. The coating of albumin is not entirely impervious and when the wound is swabbed over with strong alcohol, the small amount of phenol imbedded in this film, is driven through the fissures and crevices to the deeper structures below, thus diffusing it so that it can be absorbed instead of further affecting the tissues. Some of the phenol on the surface mixes with the alcohol and is made so thin and weak that it easily passes through this film made pervious by the first impulse of the alcohol. Should the amount of phenol be large, the urine will reveal the presence of carbolates. The return of the wound to its original color is the same as in experiment No. 5, in which the mucous membrane of the lip returns to its normal color.

The internal use of alcohol as an antidote to phenol has not only proved ineffective but even dangerous. Although alcohol acts the same internally as it does externally, still the result is harmful when left in the stomach together with the phenol.

All dogs used in the following experiments were first placed under the influence of ether, and their stomachs washed by means of the stomach pump.

Experiment No. 6.—(*a*) Two drachms of pure alcohol were given to one dog. Within a few minutes toxic symptoms began and continued for several hours until death occurred.

When the stomach was examined it was found to contain a good deal of the phenol used, absorption having been prevented by the formation of an

albuminous film. Death was principally the result of the shock produced by the local action of the poison and but slight absorption.

(*b*) To a second dog of about the same weight as the first, two drachms of pure phenol were given. A few minutes later alcohol was administered and immediately all toxic symptoms increased, death resulting within the hour.

The stomach was found empty and not as white as in the first dog. The urine and blood showed very much the presence of the poison, since death was hastened by the increased absorption brought about by the alcohol.

(*c*) A solution of two drachms of phenol in alcohol were given to a third dog. Poisoning symptoms rapidly began and continued until death, which resulted within the hour. The stomach was found empty and to all appearances normal. The urine and blood were saturated with the poison.

(*d*) A small quantity of phenol was given to a fourth dog and later followed by alcohol. Signs of poisoning arose but were not very severe. The urine was obtained and allowing it to cool, changed to a very dark color, indicating the presence of carbolates. The quantity of phenol given was not sufficient to produce death, and, although forced more rapidly into the system by the alcohol, it was finally eliminated by the kidneys.

In every case where alcohol was used, either following or together with the phenol, the stomach was found empty and with very little or no change in the color of the mucous membrane.

When a large amount of phenol has been taken and alcohol is given while the poison is still in a free state, death will be much hastened, just as in the second dog. The alcohol in this case acts like an oil in phosphorous poisoning, by increasing absorption. The alcohol mixes with the free phenol in the stomach and, acting like pure alcohol except to a less degree, forces the phenol already imbedded in the mucous coat of the stomach into the circulation, following which the remainder of the contents are absorbed, death rapidly ensuing. Should the free acid in the stomach be first removed and then followed by alcohol, the result would depend upon the quantity of phenol already imbedded in the mucous coat of the stomach. This quantity when large, upon diffusion and rapid absorption, would result in death; but, if not enough to be dangerous to the system when absorbed, alcohol would be of great benefit by hastening the elimination of the poison in a diluted state, as in the case of the fourth dog. Even then there is great danger to the kidneys.

The importance, therefore, of first removing whatever poison there is in the stomach before using alcohol cannot be too strongly urged. This is best accomplished by lavage. Some believe lavage to be contraindicated on account of the corrosive action of the phenol upon the stomach and the danger of perforation; but it must not be forgotten that particularly phenol, of all corrosive poisons, limits its destructive progress and, therefore, does not weaken the stomach to such an extent as to make the passage of a stomach tube dangerous.

Many solutions can be used for lavage in phenol poisoning, but by far the best results are obtained from a solution of the two most well known and best antidotes for this poison, namely, albumin and magnesium sulphate. To every eight or ten ounces of water, a few grains of sodium chloride are added

and the white of one egg dissolved, then enough magnesium sulphate is added to saturate the solution. A clear solution results and when a drop of phenol is added to it in a test tube, a uniform white precipitate will immediately occur. Care should be taken not to add too much albumin in making this solution, as lavage will become difficult due to the clogging of the stomach tube by the albumin coagulated by the phenol in the stomach.

The phenol exerts its energy upon the albumin in this solution more thoroughly and rapidly than upon albumin alone. It combines feebly with the magnesium sulphate chemically, is mildly astringent and does not force the poison through the albuminous film into the system, as does alcohol. This solution is of not much benefit when left in the stomach together with a poisonous amount of phenol, as will be shown later, but for lavage it cannot be excelled. Although the albumin is coagulated by the phenol, still it does not combine with it chemically, as does bichloride of mercury. The albumin in this solution acts mechanically and is a means of bringing up the free phenol.

Experiment No. 7.—Lethal doses of from two to four drachms of pure phenol were given to each of five dogs. Just as soon as poisoning signs arose, lavage was made with the magnesium-sulphate-albumin mixture until the solution came away clear and no shreds of coagulated albumin were visible. In this way all of the free phenol was removed from the stomach. This was then followed by lavage with twenty per cent. alcohol. The result was recovery in all.

Most of the phenol having been removed by the first solution, it became safe to use the alcohol as lavage. By its repellent and solvent properties it has the advantage of clearing the mucous membrane of the stomach, besides acting as a stimulant. Stimulation by strychnine, atropine and digitalin was resorted to as required.

Experiment No. 8.—Two drachms of pure phenol were given to each of two dogs, followed by a few ounces of the magnesium-sulphate-albumin mixture which was left in the stomach. Within a few hours both dogs died, despite all means of stimulation by external heat, strychnine, atropine and digitalin. This proves that it is the lavage and not the antagonism that is of greatest value.

The tincture of iodine has been recently claimed as a good antidote in cases of phenol poisoning. Some of the experiments were repeated, using the tincture of iodine instead of alcohol. The results obtained were the same as when alcohol was used. This is due to the fact that the antidotal action of the tincture is entirely dependent upon the alcohol which it contains and not to any chemical antagonism. It is claimed that the phenol combines chemically with the iodine, forming a phenol iodide. A phenol iodide will not be formed by the mere mixture of the two. A "para-phenol iodide" does exist, which besides being difficult to make, is a very corrosive poison.

Conclusions.—1. The peculiar phenomena by reason of which alcohol has been acclaimed an antidote to phenol are the result of its solvent and repellent properties and not of any chemical antagonism.

2. Phenol or carbolic acid, though it is a powerful corrosive, limits its destructive progress by the formation of an albuminous coagulum.

3. Alcohol is of great value externally when used early, but late, the destruction of tissue is not prevented, although the appearance is better.

4. On account of the repellent and solvent properties of alcohol, it is dangerous to be left in the stomach together with the phenol.

5. The advised treatment is first lavage with some solution as the magnesium-sulphate-albumin mixture, followed by lavage with a solution of alcohol as a clearing agent.

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Editorial

CREMATION, THE BEST METHOD OF DISPOSAL OF THE DEAD.

The question of how to dispose of the dead is indeed a grave question. It deserves thoughtful consideration and in the case of the inhabitants of our large cities it becomes an anxious and a pressing matter which can only be solved by scientific principles. It is a fundamental question of civilization. The method of disposing of the dead in such a manner as best to combine reverence for the body with due care for the living and their health, is one so full of interest, that no one traveling in lands where other methods are in vogue can fail to express some curiosity on the subject.

Nothing can be more admirable from a scientific point of view than the newly proposed method of disposing of the dead by cremation. There is no scientific or religious reason for objecting to cremation, as God who raises the dead from their graves can also join them together from the ashes which have been scattered to the winds or preserved in urns. From a scientific point of view the best method is that which is in strict accordance with Nature's fixed intentions and which shall not be delayed by artificial means to the obvious detriment of our plainest sanitary necessities. We should approach this subject and its investigation by the broad scientific and sanitary road.

History tells us that the burial customs of ancient nations differed widely. Man throughout all historic periods has disposed of his dead kin after some fashion or other. He has either hidden the body in a cave and closed the opening to prevent the tenants from wild beasts, or to embalm and preserve as much as may be so preservable—a delay of Nature's certain work, or the body was buried in the soil in wood, stone or metal. Each one of these modes of disposal is another means or contrivance of delay but never to prevent the inevitable change. In cremation, the body is burned and so restored at once to its original elements, in which case Nature's work is hastened.

The obstacles to cremation are numerous, and among the chief are superstition, customs and sentiment of a very promiscuous kind. The question to be solved is, which form of disposal of the body is best for the survivor. It must

only be regarded from the point of view in the interest of the survivor as we know that the dead has no interest in the matter.

It is a well-known fact that with the progress and onward rush of civilization, it is the tendency of the population to increase and condense, and thus live in crowded cities. There is no necessity to prove, the fact is too potent, that burial in the soil is full of danger to the living. Every piece of ground used as a burial ground will some day be utilized for the purpose of building dwellings, or for food production. No available progress can be made in moulding public taste and opinion upon this subject, until we scientific men are prepared to offer good reasons for our declarations. The chief appeal must be the most important law of nature, namely self-protection.

Cremation insures the purity of the atmosphere and springs. By means of the modern and scientific method of cremation, the human body can within a short time be reduced to a few pounds of white, odorless ashes.

Cremation is now a necessity, a sanitary precaution against the propagation of disease among a population which is increasing and becoming large in relation to the area it occupies.

There is a general rule that what is good lives and what is bad dies. It is so with the human body. When it reaches the stage in which it is diseased to such an extent that there is an inharmonious working of the bodily organs or an inactivity of the vital processes, death results. It is then that the stages of decomposition set in with its attendant putrescence. This is Nature's method of reducing the body to ashes. Nature does nothing without an ample meaning; nothing without an object desirable in the interest of the body.

The processes of decomposition affecting an animal body is one that has a disagreeable, injurious, often fatal, influence on the living body if sufficiently exposed to it. Thousands of human lives have been cut short by the slowly decaying and often diseased animal matter. Every dead body, whether it be an animal or a man, must enter sooner or later by the process of decomposition into the vegetable kingdom. Then why not hasten this inevitable change and thus avert the disaster which it causes yearly. Why should we permit it to make mischief during its change? We must change the slow and disagreeable process of decomposition and rid the earth of the decaying remains of diseased humanity which pollute the earth, the air and the water. It has been calculated that the injury inflicted upon the population is in proportion to the density of the population and the extent of the cemeteries.

It cannot be denied that cremation has advantages, instead of the old process of putrefaction occupying a term of a number of years and, at the same time, disseminating innumerable germs of fatal diseases, only to be propagated in whatever way they find a favorable soil. There are also physical changes which are too repulsive for the mind to dwell upon. However, the chief object of cremation is to convert the entire mass of putrefied matter as rapidly as possible into a harmless dust and, at the same time, destroy all the pathogenic organisms. It destroys all corrupting matters, renders all the infectious matter inert, and restores valuable matter in the form of gases to the

atmosphere where they at once enter into new combinations with healthy living organisms in obedience to the laws of Nature.

By the act of interment or "paying that last tribute of respect to the dead" we literally sow broadcast innumerable seeds of pestilence, germs which long retain their vitality. Many of them are destined, at some future time, to resume activity and thus bring about premature deaths, or else ruined health and untold misery to thousands.

The earth worm in some cases plays an important rôle in bringing up buried infectious material by its ceaseless activity which thus endangers the lives of the individuals in that vicinity.

There are many cases and scores of instances in countries, villages and cities both at home and abroad that the graveyards, which are found in the midst of the dense population and dwellings, are so packed with putrefied bodies that it becomes impossible to dig a grave without disturbing human remains. The soil being so saturated with foul fluids, and the emanations so noxious, as to make the churchyard a focus of disease.

Graveyards, wherever situated, are in their nature transitory. Even remote cemeteries far out in the country succumb to the march of improvement. Beautiful as they sometimes seem, and harmless as the advocate of inhumation would have us to believe them to be, the putrid tenants of the graves contain the germs of infectious diseases.

Plagues, caused by excavation of the ground where a few hundred years previous the victims of pestilence had been buried, have been recorded. It has been finally resolved from investigations, that the inhumation of human or animal bodies dead from infectious diseases result in constantly loading the atmosphere and polluting the waters with not only the germs that arise from the process of putrefaction, but with the specific germs of the diseases from which death resulted. The air becomes vitiated and the springs and wells in the vicinity become polluted.

Another charge that can be brought against cemeteries is that enormous sums of money are invested annually for their maintenance. Sums entirely disproportionate to the sums they yield. Every year many acres of fertile land are devoted to the burial of the dead that might otherwise be restored to better uses than the mere storing of decaying bodies.

Materia Medica and Therapeutics

ANTIFERMENT SERUM IN THE TREATMENT OF SUPPURATION.

Dr. A. Fuchs has employed leukofermantin in 11 cases of his gynecological practice, with the best results. If the serum is brought intimately in contact with the interior of the suppurating cavity, the suppuration will generally cease within twenty-four hours, and in from one to two days healthy granulation will be formed. The results were not so good in puerperal mastitis, since the abscesses here are frequently disseminated and require free incision.

In every inflammation leading to suppuration, the polynuclear leucocytes play an important rôle, in that they furnish a proteolytic ferment which digests the tissue proteids. In normal blood serum there is found an antibody against the ferment, which is able to paralyze its action. A horse serum has now been placed on the market under the name of leukofermantin, which contains this antibody in sufficient amounts for therapeutic purposes. It will inhibit the excessive breaking down of the tissue, and thus hasten the process of absorption and healing. (Zentralbl. f. Gynek., 1909, No. 9.)

APPENDICITIS, TREATMENT OF.

Dr. Beverly Robinson outlines the following treatment for appendicitis: 1, Rest in bed; 2, the ice-bag or hot water bag; 3, laxative enemas; 4, codeine every hour, by the mouth, in small doses; 5, in rare instances only, morphine hypodermically, and this only for excessive pain, not otherwise relieved. Whenever the stomach tolerates it, 10 grains of salicin in cachets every two to four hours. This gives a practical, rational, effective treatment of appendicitis. During the acute stage only liquid food in small quantities should be permitted. Whenever an abscess is well defined, it should be opened and drained. Prompt operation is the only hope when perforation occurs. "A dose of castor oil and blue mass, taken in time, for adults and children, and sweets and alcohol cut off for a while from daily use, would save many a patient from operation and from abdominal pain and distress. (New York Medical Journal, May, 1909.)

ARTERIOSCLEROSIS, TREATMENT OF THE GASTRIC SYMPTOMS OF.

Dr. H. L. Akin, of Omaha, discusses the frequency of gastric symptoms in cases of arteriosclerosis, and gives the histories of some personal cases. He emphasizes particularly the importance of examining the vascular system thoroughly. The diet should be restricted to plain, nutritious and digestible food, the evening meal very strictly limited, so as to leave no chance for gas formation, and careful attention paid to such hygienic aids as are suitable to the case—bathing, fresh air, suitable exercise, attention to the bowels, relief from work, etc. He states that the vasodilators are the foremost drugs—diuretin, a saturated solution of sodium, nitrite, and nitroglycerin. Diuretin, or theobromine sodium salicylate, is the most effective and most used, being employed in doses of 10 to 15 grammes three times a day. So prompt and satisfactory is its action in cases of this kind that its use has been recommended as a means of diagnosis in doubtful cases. Its effect depends on its powerful action in overcoming the vessel spasm and dilating the arterioles so that they allow a greater flow of blood to the sclerosed areas.

Of diuretin it is also suggested by Buch that it may neutralize the effect of some toxic agent which tends to irritate the vasomotor centres and cause contraction. Whatever the exact mode of action, its effects are very satisfactory, and its use may be continued for one or two weeks or even longer without harm. Following this the effect may be continued by the use of tincture of strophanthus, 5 to 8 drops three times a day, which seems to have a similar action to the diuretin, so much so that it is used in place of the latter in some cases in which expense is of great consideration.

As in all arteriosclerotic conditions, the iodides have an important place. Potassium or sodium iodide in doses of 5 to 10 grains may be continued over a

long period, but it is asserted that the good they accomplish is not due so much to their so-called alterative effects as it is either to a dilating effect on the vessels involved or to a lessening of the blood density. (Journal of American Medical Association, June 5, 1909.)

DISLOCATION OF THE SHOULDER, REDUCING A.

Dr. G. Schichhold relates the following simple method of reducing dislocation of the shoulder: The forearm is held between the physician's thighs as he stands in front of the seated patient. The arm is held firm by the adductor muscles and strong pressure can thus be brought to bear as the physician pulls back while holding the shoulder with his hands. The downward pressure thus exerted overcomes the action of the antagonist muscles and stretches the capsule and ligaments until reduction is easily done. Dr. Schichhold has applied this method in many cases during the last forty years with satisfactory results. The chief advantage of this technique is that he can regulate, himself, the force of the traction exerted to the exact amount required for reduction, as he grasps the neck of the humerus with one hand and with the other presses the head into place, both hands being free for the manipulation of the joint. The only assistance required is some one to hold the patient firm in the chair, one arm around the neck and the other in the axilla. The technic allows rapid reduction of even old dislocations without anæsthesia, assistance or apparatus. (Medizinische klinik., Berlin, April 11, 1909.)

MENINGEAL, SINUS AND LABYRINTHINE COMPLICATIONS, TREATMENT OF.

Dr. S. MacCuen Smith states that the operative procedure consists in eliminating the focus of the disease by removing all the necrotic bone, including a complete exenteration of the mastoid cells, thus exposing the affected dura. When necessary, the membrane should be incised to provide for the escape of any fluids, just as is done in the serous forms of meningitis.

The author believes that a pyemic state does not necessarily mean a sinus thrombosis. He cites two cases of metastatic abscesses of the liver which were traced directly to a suppurative process in the organ of hearing in which, on autopsy, the sinus was not involved in any way. The consensus of opinion favors ligation of the internal jugular vein when the sinus contains pus, a disintegrated clot or more especially when a thrombus is felt along the course of the vessel.

The mode of infection in labyrinthine suppuration is through the fenestra rotunda, the fenestra ovalis, the promontory or horizontal semi-circular canal. This invasion may also occur by way of the aqueductus vestibuli, the aqueductus cochleæ and the posterior or superior canal. If during the radical mastoid operation, necrosis is observed to involve, or pus is escaping from, one of the aforementioned localities, the surgeon, especially in the absence of definite labyrinthine symptoms, will find it hard to decide whether or not operative interference is absolutely indicated. Most of these cases spontaneously recover with the good drainage provided by the radical operation and the removal of the granulation tissue from the infected window, but one should be careful not to disturb the protective adhesions that limit the focus of the disease to the labyrinth. If the fistulous opening is merely enlarged, the patient will generally recover. (The Therapeutic Gazette, March 15, 1909.)

MENINGITIS, TREATMENT OF, BY UROTROPIN.

Dr. S. J. Crowe reported a case with cerebrospinal fistula in which a fatal outcome was looked for, and in which, at Dr. Cushing's suggestion, urotropin in large doses was given, in the hope of its cerebrospinal excretion. The patient recovered. This led to further investigation by the writer and it was found that the drug may possibly be absorbed as readily by the rectum as when given by the mouth. It has been the custom in the Johns Hopkins Hospital to administer urotropin promptly to all patients with lesions which are not infrequently followed by meningeal infection; and the complete absence of such complication in quite an extensive series of cases seems to fairly well establish the prophylactic importance of the drug. This series included a number of compound fractures of the skull, gunshot wounds of the head, and cerebrospinal fistulas, the patients receiving 30 to 60 grains urotropin daily. It is also used prior to ventricular or lumbar puncture, when local conditions make possible the inoculation of the meninges with organisms from the affected skin; and, too, urotropin should be given before a first catheterization or one done when urethral infection is present. Possibly, too, the drug may be wisely used in cases of extracranial infection when extension to the meninges is feared, as in infected scalp wounds, otitis media, suppuration of the cranial sinuses. Its use may be desirable also in elaborate spinal or cerebral operations. The author summarizes:—

1. Urotropin, given by mouth, invariably appears in the cerebrospinal fluid. This fact has been demonstrated by a large number of observations on man, and is also true of dogs and rabbits.

2. The largest amount of urotropin is present in the cerebrospinal fluid from thirty to sixty minutes after ingestion of the drug.

3. After therapeutic doses a sufficient amount of urotropin appears in the cerebrospinal fluid to exercise a decided inhibitory effect on the growth of organisms inoculated into this fluid after removal from the body.

4. Following a subdural inoculation of dogs and rabbits with streptococci, 60 to 80 grains of urotropin a day, given under conditions which insure absorption, will markedly defer, and in some cases prevent, the onset of a fatal meningitis.

5. The prompt administration of urotropin is advised in all clinical cases in which meningitis is a possible complication, or even when meningeal infection has actually accurred. (Johns Hopkins Hospital Bulletin, April, 1909.)

PHLEGMONS OF THE HAND WITH HOT AIR BATHS, TREATMENT OF.

Dr. H. Iselin outlines a very successful treatment of such an affection. Small incisions are made on the palmar and lateral surfaces to evacuate pus, without injuring tendons or nerves; cavities are irrigated with salt solution, and very lightly packed with iodoform gauze; on the very day of operation the hot air treatment is instituted, at first daily for two hours, later only once each day. The dressings are renewed and the affected member placed in the dry hot air bath at a temperature of from 90 degrees to 110 degrees C. Care should be taken to keep the skin in good condition.

By means of this treatment the pain is much reduced and healing accelerated. The necrosis of tendon sheaths is almost eliminated, occurring only once in a woman with streptococcus infection, in whom a single tendon was lost. The results have far surpassed those obtained

by means of Bier's passive hyperæmia and hospital supervision is not essential. (Muenchener Medizinische Woch, April 20, 1909.)

PLACENTA PRÆVIA, TREATMENT OF.

Dr. B. Krönig summarizes the details of twenty cases of placenta prævia at the Freiburg clinic in which the women were under the most favorable conditions in regard to the medical supervision in a clinic, asepsis, etc., from the start. In every instance during delivery hæmorrhage was arrested by version. He states that control of hæmorrhage by the metreurynter cannot be relied upon owing to the fact that hæmorrhage is from the isthmus as a rule and the metreurynter stretches the isthmus still farther. Four of the twenty patients bled to death and another succumbed to sepsis, and yet the conditions were exceptionally favorable for all. Those who survived suffered long from severe anemia. The more advanced the pregnancy the greater the tendency to hæmorrhage. The conclusions from this series of cases are that the results of treatment of placenta prævia are so disappointing by the present methods that it is incumbent on us to seek for improved methods of treatment. He has been looking over the records of 34 cases of placenta prævia received at the clinic since 1904, in which the date of the first hæmorrhage is mentioned; in every instance a warning hæmorrhage had occurred during the last few days or weeks before the child-birth. The physician summoned merely ordered the patients to bed and the hæmorrhage stopped with the bed rest. These warning hæmorrhages recurred three or more times before labor came on, and the physician would have had ample time to send the patient to the clinic if the warning of these premonitory hæmorrhages had been heeded. The obstetrician is able to save the mother with contracted pelvis by perforation during delivery in the home, but with placenta prævia both mother and child succumb in 15 to 20 per cent. of the deliveries in private houses. Even in the clinics the mortality is still from 5 to 8 per cent. at the best. (Zentralblatt für Gynäkologie, Leipsic, April 3, 1909.)

SUBACUTE ALCOHOLISM, TREATMENT OF.

Dr. Robin reports the treatment of a case of alcoholism in a patient with good results. The patient was a man aged 42 years, house painter, who entered the hospital with slight attacks of lead colic, which gradually disappeared and with subacute alcoholic poisoning, with tremors, excitement and hallucinations. The best remedy in such cases, according to the author is paraldehyde. This may be taken in solution, 4 grains in 60 cubic centimeters of water. Of this, one-fourth should be taken in a little water at intervals of half an hour. This treatment should be renewed a few days later. At the hospital the following potion is employed:—

℞ Potassium bromide, 6 Gm.
Morphine hydrochlorate, 0.05 Gm.
Cherry laurel water, 10 Gm.
Syrup of ether, 30 Gm.
Hydrolate of valerian, 110 Gm.

Five tablespoonfuls in twenty-four hours. Under this treatment the excitement rapidly disappears. Injection of two-tenths of a milligram of scopolamine hydrobromide are exceedingly useful for the tremors. Six of these injections were within eight days and the tremor disappeared. Alcoholics bear these injections well. Other patients should not get more than one-tenth milligram at first and the dose may be increased gradually to eight-tenths of a milligram, but never above one

milligram. The remedy is very toxic and rapidly produces vertigo, somnolence and clouding of the intellect, which indicate that the limit of tolerance has been reached. (Quinzaine Thera., April 10, 1909.)

TRAUMATIC INJURIES OF THE EXTREMITIES; THEIR TREATMENT.

Dr. Walter T. Dannreuther, of New York, advocates conservatism whenever at all possible in the treatment of traumatisms of the extremities, even when we have compound and comminuted fractures which are soiled as well. He gives three illustrative cases in which the part was saved to the patient by the use of conservatism. The essential prerequisites are a good constitution, age under sixty, the integrity of at least one-third of the circumference of the limb, adequate blood-supply to the injured area, and a good nurse. Perfect asepsis and antisepsis, immediate restoration of the parts to their normal position relations as far as possible, free drainage, and constant wet dressings are the methods used to obtain cure. Glycerin is of value to keep the dressings wet and promote drainage and hasten sloughing. (Med. Record, May 1, 1909.)

VARICOSE VEINS OF THE LEG, TREATMENT OF.

Dr. J. E. Jennings describes a very practical and advantageous method of removing the entire vein. His method is as follows: The foot is placed on a sand-bag with the heel elevated about eight inches. A sterilized Esmarch bandage is lightly tied as high up on the thigh as possible. The internal saphenous is found as low down as possible, preferably where it crosses in front of the internal malleolus and cut down upon through a small longitudinal incision. Through this the vein is lifted up, clamped and cut, and into the lumen of the proximal end of the vein a twister is inserted and passed up inside the vein as far as it will go. This will be somewhat below the knee, where it is felt through the skin and cut down upon. A clamp is put on the vein above the end of the tractor and the vein cut, a ligature just below this is passed through the walls of the vein and the hole in the end of the tractor and tied around the vein and instrument. Then the end of the vein is twisted and pulled back, so as to invaginate into its own lumen through which by torsion and traction it is removed. The process is then repeated above, passing the tractor from below upward, as it does not then engage in branch veins. The twisting of the vein in its removal is a great help in some cases, and the ease with which veins are removed will vary. The hæmorrhage is not marked, especially when the vein is twisted out, and is easily controlled if present by a light roller from the toes up. (Long Isl. Med. Jour., Feb., 1909.)

Book Reviews

THE EMMANUEL MOVEMENT IN A NEW ENGLAND TOWN. A Systemic Account of Experiments and Reflections Designed to Determine the Proper Relationship between the Minister and the Doctor in the Light of Modern Needs. By Lyman P. Powell, Rector of St. John's Church, Northampton, Mass., Author of "Christian Science: The Faith and Its Founder," and "The Art of Natural Sleep"; and Editor of "Historic Towns of the United States." Illustrated. New York and London: G. P. Putnam's Sons; The Knickerbocker Press, 1909.

In this volume are brought together all the author's experiences and accomplishments in healing the sick by means of the Emmanuel methods. The cases which he has treated were a wide range of the so-called nervous disorders, and also alcoholics.

The book appeals to those interested in this movement to spread and also put the methods in practice. It gives one a good idea of the aim of the Emmanuel movement, and the good that can be brought about by the adoption of its principles.

The book is bound nicely, type is large, and is well worth reading.

NEW AND NON-OFFICIAL REMEDIES, 1909. Containing Descriptions of the Articles which have been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association, Prior to January 1, 1909. Chicago: Press of the American Medical Association, 103 Dearborn Avenue, 1909.

This small book, which we commend, will prove valuable to the physician by keeping him in touch with the latest materia medica. The medicinal substances contained therein have been examined and accepted by the Council of Pharmacy and Chemistry of the American Medical Association.

A description, dose, action, and uses of each drug is given. The book will undoubtedly prove its merits.

ANNUAL REPORT OF THE PENNSYLVANIA STATE COLLEGE FOR THE YEAR 1907-1908. From July 1, 1907, to June 30, 1908. Part I, Departments of Instruction. Part II, Agricultural Experiment Station. Harrisburg, Pa.: Harrisburg Publishing Co., State Printer, 1908.

This report gives all the information concerning the condition of State College. Throughout this volume are the departmental reports, outlining the achievements, hopes and needs of the respective departments. These reports contain matters of great interest to the people of the Commonwealth, and give one a thorough understanding of the courses and work accomplished by this institution. It is well worth a perusal.

VACCINE AND SERUM THERAPY. Including also a Study of Infections, Theories of Immunity, Opsonins and the Opsonic Index. By Edwin Henry Schorer, B.S., M.D., Assistant Professor of Parasitology and Hygiene, University of Missouri; formerly Assistant Rockefeller Institute for Medical Research, New York City. Illustrated. St. Louis: C. V. Mosby Co., 1909.

This small volume of 131 pages is excellently arranged, and is divided into eight chapters: I, Infections; II, Immunity; III, Opsonic Index; IV, Criticisms and Modifications of Wright's Opsonic Index Determinations; V, Opsonic Index in Health and Disease; VI, Nature of Opsonins; VII, Vaccine Therapy; VIII, Serum Therapy.

As the preface states, "In this work an attempt has been made to state concisely and accurately the present knowledge concerning vaccines and immune sera. An effort has been made to establish theoretical and experimental evidence as well as clinical application to the specific treatment of bacterial diseases." The author has well succeeded. Vaccine and serum therapy is a subject of growing importance to the physician, and the literature bearing on it is none too great, especially in quality. The subjects covered are based upon the latest investigations, and in order to make the book of especial value the author has devoted considerable space to opsonins, the opsonic index, and the importance of opsonins in health and disease. He also describes concisely the course of infection, the theories of immunity and the various sera. In order that the text be eminently practical, the writer has described the mechanical technique. The entire book is written in such a style as to make it engaging reading, while it also imparts instruction in every line. All the chapters are good, and nothing of importance seems to have been left unsaid.

PHYSIOLOGICAL AND MEDICAL OBSERVATIONS AMONG THE INDIANS OF SOUTHWESTERN UNITED STATES AND NORTHERN MEXICO. By Ales Hrdlicka. Washington: Government Printing Office, 1908.

This volume is the thirty-fourth bulletin of the Bureau of American Ethnology, and contains considerable data concerning the physiological nature, medical questions and notes on conditions which determine the welfare of the Indians. The work is arranged by subjects and not by tribes. All the information contained in this bulletin is the result of personal observation and extended researches in the region between latitude 38° and 18° west of the Rio Grande and the Mexican Central Railway, and east of the Rio Colorado and the Gulf of California.

Besides the numerous illustrations, there is an appendix which contains: A, Native Foods; B, Tables of Detail Measurements and Observations; C, Bibliography.

The text is well-arranged, well-written, facts clearly stated and interesting, and meets the requirements for which it is placed before the profession.

TUBERCULOSIS A PREVENTABLE AND CURABLE DISEASE. Modern Methods for the Solution of the Tuberculosis Problem. By S. Adolphus Knopf, M.D., Professor of Phthisio-therapy at the New York Post-Graduate Medical School and Hospital; Associate Director of the Clinic for Pulmonary Diseases of the Health Department; Attending Physician to the Riverside Sanatorium for Consumptives of the City of New York, etc. New York: Moffat, Yard & Company, 1909.

This work is intended to afford a more intimate knowledge and comprehension of this dreadful disease, tuberculosis. It is not only a book for the physician and sanitarian, but also for the consumptive himself and those living with him; a book for the statesman, legislator, educators and teachers. It discusses the most simple and practicable means of preventing the spread of the disease, the various methods of combating it when it is present, etc.

The book contains twelve chapters: I, What a Tuberculosis Patient Should Know Concerning His Disease; II, What Those Living with Patients Should Know Concerning the Disease; III, The Duties of the Physician Towards His Patient, Towards the Family of the Patient and the Community He Lives in; IV, How the Sanatorium Treatment May, if Necessary, be Adapted to and Imitated in the Home of the Consumptive, Well-to-do or Poor; V, What Hygienists and Sanitarians May do Towards the Prevention of Tuberculosis; VI, The Duty of the Modern Municipal—City or Town—Health Authorities; VII, The Duties of the City Fathers, Legislators and Statesmen in the Combat of Tuberculosis; VIII, What Employers, Factory Owners, Storekeepers and People Having Servants can do to Diminish Tuberculosis Among the Men and Women Working for Them; IX, The Duties of Educators, Professors of Colleges and Teachers in Public and Private Schools in the Combat of Tuberculosis; X, The Duties of Philanthropists, Charitable Individuals and Charity Organizations; XI, The Duty of the People at Large in the Combat of Tuberculosis as a Disease of the Masses; XII, Prospect of the Ultimate Eradication of Tuberculosis.

The author is so clear and explicit in his details that any one should be able to employ the methods outlined by him. The book cannot fail to prove of great interest and benefit, as the author is well-known as an authority on this subject. He has devised a window tent which is within reach of the poor consumptive who cannot afford the more elaborate ones. The ground is covered well and the work deserves to be read.

HAND-BOOK OF DISEASES OF THE RECTUM. By Louis J. Hirschman, M.D., Detroit, Mich., U. S. A., Fellow American Proctologic Society; Lecturer on Rectal Surgery and Clinical Professor of Proctology, Detroit College of Medicine; Attending Proctologist, Harper Hospital; Consulting Gynecologist, Detroit German Polyclinic; Collaborator on Proctology, "Physician and Surgeon"; Editor "Harper Hospital Bulletin"; Chairman Section on Surgery, Michigan State Medical Society; ex-President Alumni Association, Detroit College of Medicine, etc., etc. With One Hundred and Forty-seven Illustrations, mostly Original, Including Two-colored Plates. St. Louis: C. V. Mosby Medical Book & Publishing Co., 1909.

This book has been written with the main end in view of giving those assistance in the field of proctology or ano-rectal diseases who have had deficient training in this field during their early college career, and it will therefore be of invaluable service to those who wish to pursue this line of work. The subject has been treated from the standpoint of a specialist, and every topic is concise, outlining and emphasizing the importance of early examination.

The book is composed of 374 pages, and is divided into seventeen chapters: I, Anatomy; II, Symptoms which Should Call Attention to the Rectum; III, Examination of the Patient; IV, Constipation and Obstipation; V, Fæcal Impaction; VI, Pruritus Ani; VII, Anal Fissure and Ulcer; VIII, Abscess of the Ano-Rectal Region; IX, Fistula in Ano; X, Hæmorrhoids; XI, Rectal Polypi, Hypertrophied Anal Papillæ, Cryptitis; XII, Proctitis and Sigmoiditis; XIII, Dysentery; XIV, Prolapse of the Rectum in Children; XV, The Technique of the Use of Local Anæsthesia in the Treatment of Ano-Rectal Diseases; XVI, The Limitations of Office Treatment and Indications for Other Measures; XVII, The Fæces and Their Examination.

In no other work can there be found such a store of practical knowledge. The treatment is particularly full, and it deals with conditions not only amenable to non-operative treatment, but also those demanding operative procedures. The work is authoritative, and is arranged systematically, thus covering the whole field of proctology with accuracy and clearness.

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Original Articles

Department in charge of J. MADISON TAYLOR, A.M., M.D.

THE MILK QUESTION FROM THE STANDPOINT OF THE PEDIATRICIAN.

BY JAMES H. McKEE, M.D.,

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PHILADELPHIA.

VIEWED from any standpoint, the milk question is an enormous and important one; but from the viewpoint of the pediatrician it is fundamental and well-nigh dominant. It is impossible to survey the whole ground in a discussion like the present, so only a few promontories in the landscape will be pointed out, and even these accorded somewhat terse descriptions. For the nonce, the writer must act as a somewhat "bromidic" guide who has endeavored to con well his pediatric Baedecker.

1. "Lording it over his fellows," as Washington Irving would have said, stands one great truth—one at which no student of biology is surprised. Figuratively we may style it Mount Species. Succinctly stated, the truth is that the milk of every species is the proper food for the young of that species. It is chemically and biologically superior to any other food that can be administered to the infant progeny of a given animal. Many times these words are spoken, more or less glibly, but as yet their full significance has not been realized by civilized peoples.

Aside from the congenitally deformed, the congenitally diseased, the babies injured at birth and the babies infected at birth or soon after it, very few breast-fed infants die. That, on the other hand, the death rate among the artificial-fed is enormous, need scarcely be stated to this audi-

ence. Gastro-enteric diseases loom above all others as causes of death during the first and second years of life.

Of Chapin's teaching concerning this specificity, some doggerel has been perpetrated:—

"Says he if babes would surely be
The finest of their ilk,
The proper food to feed, *per se*,
Is good old mother's milk.

Nor think he wanders far afield,
Like unto famed Ulysses;
His reasoning no palm shall yield,
His argument is species."

Civilized man has readjusted himself to many changed conditions of life; indeed, he has profited by not a few of them. If the great truth stated above is once fully appreciated, this problem of maternal feeding will be answered also. Good mothers have many splendid attributes. Some of them are really equipped for the "profession of maternity." But the truly good mother of the young infant should possess one essential attribute —the ability to nurse her baby.

2. But let us descend, as it were, from the heights of ideal nutrition to the broken and dangerous ground of artificial feeding. Here, despite many a rough boulder and deadly morass, there are still some well-beaten and fairly safe paths. Two of them, carefully traversed, will usually convey the infant through the most dangerous journey of his life. Their sign-boards read: 1. Cleanliness—*i.e.*, original integrity. 2. Proper modification.

Nature clearly indicates that the food of the young animal should be practically free from bacteria. As it is found in the milk ducts it is clean. And yet, as you all know too well, milk is a splendid culture medium for micro-organismal life. Had we not learned this fact from the bacteriologist directly, had we not acquired it practically through many a sad experience, we might have expected to find it so from the rather close relationship of its chemical constituents to those of the blood and lymph. Theoretically, it would certainly seem best that the milk of another species, if fed to the human infant, should not be exposed to such contamination. And practically, in the island of Cuba, suckling the infant directly from the goat is reputed to yield excellent results. The writer has talked with two American fathers who have pursued this direct method, and both have been enthusiastic in its praise. For some time it has been the writer's intention to carry out some experiments of this nature.

3. But for practical purposes, as we all know, there is but one animal that can supply the enormous demand for food of those cheated of their birthright.

"But breasts go dry, alack! alack!
We know not always how.
Then pediatric thoughts hark back
To the unemotional cow."

Let us pause right here and look squarely at two incontestable, though possibly antipodal, facts: 1. Ordinarily market milk is a filthy product, concerning which the public mind should be illumined. As has been graphically stated, its bacteriologic count may be higher than the bacteriologic count of sewage. 2. Milk has been sent from New Jersey to Paris, from Wisconsin to Paris, and from both starting points to Paris and back without becoming sour in the journeys (Chapin). Indeed, we read that these milks upon their arrivals in the French capital were cleaner than the milks then being vended in that city, and yet the only methods pursued in the securance of these splendid products were those of scrupulous cleanliness.

Such milks as the latter, from the pediatrician's standpoint, approach the ideal foods for the hand-fed baby. His is the responsibility, mark you, for the lives and health of the helpless ones entrusted to his care. I need not trespass upon your time to explain what certified milks and certification mean, but milk produced as these milks are produced is what the pediatrician wants. When the public once appreciates the differences between clean, fresh milk and ordinary market milk, the former is the kind that will be demanded for baby feeding. It is a glowing tribute to many a poor mother, when such differences are explained, to hear her ask: "Where can I get the milk?" What witless parsimony to quibble about 56 cents more per week for the superior article! Occasionally the quibbler is found smoking a 25-cent cigar, and he may be still dopy and irritable as a result of the expensive supper that has been tendered some business friend the night before. "Sixteen cents a quart for milk, forsooth!"

4. Pasteurization is sometimes necessary during the warmer days of the year. Like peptonization, however, it had best be regarded as a temporary expedient. We believe that it is most effective when applied at home, the milk being pasteurized in the bottles that are used for feeding the baby. That it is more dangerous to handle milk subsequent to this process than it is to handle milk not so treated, has been well proved by Evans and Cope. The well-known Freeman apparatus serves us well for home use. The writer does not wish to criticize some noble charities, for in properly equipped plants the milk may be pasteurized in the same vessels in which it is to be dispensed. Such a milk is much better for dispensing among the needy than the article that they would probably secure from the corner store. Of commercial pasteurization as commonly employed, however, the designation, commercial fraud, is neither harsh nor unjust. When we call the attention of the producer or his agent to the fact that Pasteur's principles are not followed in this process, we are either informed that we are talking about the old way, or else we are assured that this is not pasteurization—that it is the "shocking process." I am grateful for that term; it is truly a shocking process, for the lay purchaser rests under the delusion that he is receiving a pasteurized milk. Is he not told so? Again, the milk is robbed of that most important evidence of its age—souring. And still, again, in some recent experiments at the Rockefeller Institute, animals were inoculated with tuberculosis from two specimens of this so-called pasteurized milk.

Whether or not the commercial processes that respect the teachings of Pasteur and Freeman and Rosenau shall stand the tests of time and experience, remains to be determined; but until such determinations shall have been made a personal preference must be expressed for fresh, clean milk.

5. With respect to these high grade, clean milks of fairly definite composition, the physician has two very great responsibilities. Unless he assumes them, justice is not done to the producer nor the consumer. He must teach his patients that the increased cost of the good milk really represents good economy. This despite the fact that some driver or other agent is paid a bonus for securing customers with the lure that his "cheaper milk is just as good." He must also teach his patients that these milks are readily contaminated; that they should be accorded little handling and exposure, and that they should be kept on ice.

6. But to enable the baby to traverse this country successfully it is also necessary, at least in most instances, to follow the second route indicated—that of modification. Methods multiply and fashions change, but the writer still believes that the idea born of Arthur V. Meigs, of this city, and the method expounded by Rotch, of Boston, have stood the test of time. He proclaims himself an advocate of the percentage method of feeding. He does not prescribe milk formulæ without thinking in the terms of proteids, fats, and carbohydrates. He realizes fully that he is not dealing with the same proteids, fats, carbohydrates, ferments and salts that are found in human milk. Nevertheless, they are milk constituents and, clinically, he finds them far superior to the more or less bizarre products of commercial brains. He understands fully that his percentages may not be quite accurate. Very well, if they are unsuited to the individual baby, that baby proclaims the fact to observant eyes and ears. In the main, the baby is the best laboratory for the individual milk or milk-mixture. Percentage feeding, properly understood, is never the rule of thumb feeding; it is intensely individualistic. An able critic has said that we should remember that we are feeding individual babies and not test-tubes. No more powerful argument than this was ever placed in the mouth of the percentage advocate. Percentage feeding always considers the individual baby.

But what of the calorimetric method? The writer is not oblivious to the enormous amount of painstaking work that this method represents. He uses the calorimetric method, but he uses it as a check upon his percentage method rather than as a guide to his percentages. In the literature a number of criticisms of the calorimetric method have been advanced, but the two that have most appealed to the writer have been: 1. That the method strives to prescribe so many calories of energy for so much baby—this rather precluding individualism. 2. That the same number of calories may be yielded by several different combinations of proteids, fats, and carbohydrates, and yet one such formula may agree perfectly well with a given baby, while another disturbs him most markedly.

The writer believes that he has formulated the simplest method for

obtaining percentage milk-formula in existence. In devising it he strove to follow the top-milk methods of Holt and Chapin and others:—

"Nor need one rack the weary brain,
Nor search for method far;
The good percentage end we gain
From three levels of the jar."

He has expressed the whole matter in two rules:—

Rule 1. Knowing the ratio of the desired fat percentage to the desired proteid percentage, invert that ratio and make a fraction of it. That fraction represents the level of the quart milk jar from which the top milk is withdrawn. (Examples: If the desired fat percentage is 3 per cent., and the desired proteid percentage is 1 per cent., the inverted ratio is 1:3. The milk is secured from the upper third of the jar. If the ratio is 2:1, the milk is withdrawn from the upper half of the jar.)

Rule 2. Make the desired amount of proteid, expressed in a percentage, the numerator of a fraction. Make the percentage of proteid present in the milk the denominator of the fraction. Multiply the total amount of food to be given in the twenty-four hours by this fraction, and the result equals the amount of top milk to be used in the mixture. The remainder of the mixture is the diluent.

With the aforementioned authorities, he finds that most babies, not previously disturbed, can be successfully fed from modifications of the milk from the upper third of the jar, the upper half of the jar, and the whole milk.

When a more mobile method of feeding is needed, the so-called Baner's formulæ—better, the Baner modification of Thompson Westcott's formulæ—still help the writer over many a rough place in the road. As many of you probably know, Westcott has accepted the Baner modification, and has applied it practically in his ingenious "little wheel."

But in this percentage feeding, as in other methods of feeding that are to bring success, it must be remembered that no problem of nutrition is solely a matter of food. One must enter into and adjust every hygienic detail of the infantile existence. Suit the food to the baby, but bring the baby up to its food also.

7. Despite several clarion-like denials from inhabitants near the great lakes, the writer still finds that the casein of the cows' milk sometimes disturbs the human baby. Probably the best clinical evidence of this is found in the fact that babies who are disturbed by whole milk, may still take whey-cream mixtures and thrive upon them. That fat is often the disturbing agent, however, there is no gainsaying. Among Americans who called attention to this fact some years since, we may mention Jacoby and Westcott and Edsall. While expressing himself as truly grateful for every particle of laboratory work that enables us to detect the various undigested milk constituents in the stools of babies, the writer still finds the following clinical table of value:—

SYMPTOMS THAT GOVERN US IN THE PERCENTAGE FEEDING OF THE INDIVIDUAL BABY.

Symptoms.	Proteid.	Fat.	Carbohydrate.
of Excess.	*Intestinal colic.* The baby is often relieved by the passage of gas from the bowel. *The stools* are often green, and there may be constipation or diarrhœa. In the former case, there may be a putrefactive odor. Curds may also be present, but these are hard to tell from masses of fat or soap. *Vomiting*, when present, is liable to appear soon after feeding, and the vomitus contains curds. These babies may gain rapidly in weight despite their discomfort.	*Vomiting* often occurs hours after feeding, and usually the odor of butyric acid is very apparent. *The stools* are often loose, and are also sour (butyric acid). They are frequently very yellow (gelbfarbung-Biedert's fat diarrhœa). They also contain fatty masses. On the other hand, there may be constipation, when the stools are peculiarly light in color and dry. *Colic*, when present, is usually gastric (Westcott).	*Vomiting* may be very frequent and the vomitus very sour. (This is due to lactic acid, however.) *The stools* are acid, and often excoriate the buttocks. They are often green. *Fretfulness* is liable to be present most of the time. Rickets (?). In reality, this may result because the excess of carbohydrate is used to atone for the deficiencies of other organic elements. *Scurvy.*
of Deficiency in	Hunger. Failure to gain weight. Rickets Scurvy.	Rickets Hunger and failure to gain weight.	Not definitely known; but it seems rational to use an amount of milk sugar equivalent to that which nature has placed in mother's milk. In certain states (diabetes, etc.) disaster results when we give too little carbohydrate.

With but two modifications, this table has been in use for teaching purposes for nine years. In the original table he spoke more positively of the occurrence of curds in the stools than it is now possible to do. In the original table he did not mention the dry type of fatty stools so graphically described by Brenneman and Walls. Concerning this fat constipation, however, the writer must hasten to say that, while he has seen it several times, he does not view it as a usual symptom with fat excess in the food. He finds the Biedert symptoms-complex far more frequently (Biedert's fat diarrhœa). As Jacoby has shown, some babies fail to do well until fat is added to their food. The writer rarely gives more than 3 per cent. of fat, and almost never more than 3½ per cent.

8. Anent of fat disturbances, one must give more than a passing mention to the wonderfully successful, if somewhat revolutionary, method of buttermilk-feeding. He never thinks of it and of the babies he has seen saved by it, that he does not feel grateful to his colleagues, Drs. Fife and Carpenter, who employed this method so successfully at the Philadelphia Hospital. The wonderful potency of buttermilk is not dependent alone upon its low fat content; it is not dependent solely upon the fact that it is usually prescribed in sterile form; but also, and probably chiefly, upon the fact that the proteid (the tissue builder) is given in relatively large amounts in a readily digestible and assimilable form. The producer who will supply us with a reliable buttermilk will find a large sale for his article, and will secure a good price.

9. The casein of cows' milk often requires some modification. Following Chapin's methods rather closely, the writer finds himself using carbohydrate diluents more and more frequently. The carbohydrate is used in small quantity, however, and is not ordinarily intended to replace the fats or the proteids of the milk.

In the case of premature or very weak babies, ordinary percentage methods are abetted by peptonization. We thus give the baby a sterilized food, and at the same time spare him the energy that he would otherwise have expended in digestion. If the processes of sterilization and predigestion are thoroughly understood, neither will be pursued for a length of time. After he is well started on life's journey, the little subject is carefully tried upon appropriate certified milk formulæ until he is finally able to digest them and thrive upon them.

10. In the treatment of babies affected with the infectious diarrhœas of the summer season, milk has no place. Whether we are dealing with a milk infection or not, and usually we are, milk will still furnish a splendid culture medium for the bacteria still inhabiting the disturbed gastro-intestinal tract. The writer makes it a working rule to avoid all milk for at least one week after such an attack.

Thus we have made a hasty survey of a large and wonderfully interesting territory. Some of it is still unknown country, and work remains to be done, not by the overzealous adventurer, but by the scientific explorer. Anyone of the points of interest we have noted on the way would have furnished sufficient material for a whole evening's discourse. Let us for a moment proceed back to the starting point and permit our eyes to rest upon the mountain—upon one of Nature's immutable laws—for there rests the promised land of the race.

THE THERAPEUTIC ACTION OF IODINE AND MERCURY IN DISEASES OTHER THAN SYPHILIS.

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WASHINGTON, D. C.

The recent rehabilitation of mercury in the treatment of tuberculosis coincides suggestively with the fact, that for many years I have noticed the curative effects of mercury and iodine in diseases in cases in which there was no suspicion whatever of syphilis—as already emphasized in a paper I read January 13, 1908, before the Therapeutic Society of the District of Columbia on this subject. As to iodine, Coindet, of Geneva, was the first to employ and recommend the use of this valuable agent. His success fully answered his expectations, and in a paper communicated, July 25, 1820, to the Society of Natural Sciences at Geneva, he made known his invaluable discovery. He remarked that "the efficiency of the remedy in goiter,"

naturally led to its employment in other tumefactions, especially the scrofulous." The favorable reports made of it rapidly diffused its reputation throughout the medical world. The names of Brera, Lugol, and Manson are also favorably connected with the early history of iodine, especially in connection with "scrofula," which we now know signifies tuberculosis.

In the *Journal of the American Medical Association*, November 17, 1900, there appeared an exceedingly interesting article by Alfred C. Croftan (then living at Pasadena, California), entitled "Iodine Used Hypodermically in the Treatment of Pulmonary Tuberculosis," in which he reviewed the work done by Coindet, and Rilliet, and Binz, Niemeyer, Kaemmerer, Sée, and Stillé. Croftan then (nine years ago) stated, "In the light of our theoretic beliefs the administration of iodine should act curatively in pulmonary tuberculosis; the virus of tuberculosis, entering the blood at first in minute quantities, produces certain slight reactive phenomena from the cells that it is selectively attracted to; this reaction may or may not become subjectively and objectively perceptible; that will depend on its intensity, the character of the reactive symptoms with the rather crude clinical means at our disposal, and the uncertain evidence of our senses."

Croftan made use of iodipin in the form of a 10-per-cent. preparation. The injections were made into the subcutaneous tissues between the skin and the muscle, and preferably in the gluteal and interscapular regions. "No discomfort of any kind was ever caused, no inflammatory reaction observed at the site of the injections, though some patients received daily injections for a period of three or four months.

"Beginning with one drop of iodipin which, to give the necessary bulk for hypodermic administration, was dissolved in half a drachm or so of sterilized oil, the injections were gradually increased, one drop being added to the dose each day. . . . The results obtained so far by this plan of treatment have been uniformly good; in a few cases amelioration of symptoms was marked from the beginning; appetite improved, the cough, the night sweats, grew less severe; the patient gained in weight and improved in spirits. The physical signs were modified and seemed to show that the process was at least being held in check and rendered latent; in 2 out of my 27 cases a recurrence of symptoms occurred at the expiration of three and five months, respectively; these patients underwent a second course of treatment with good result. It is altogether too early to make any statements in regard to a cure."

More than twenty years ago I reported the case of a man who was far advanced in pulmonary tuberculosis. He became interested in daguerreotyping, and passed hours every day in the dark-room, inhaling the fumes of the iodides. In a few months he had entirely regained his health. I also met recently Mr. Samuel Rush Seibert, who had been one of the first disciples of Daguerre. Mr. Seibert referred to many such cases, and explained that they were obliged not only to inhale the fumes of iodine, but also of mercury. He furthermore gave me an abstract of an article which appeared in the *Philadelphia Record*, January 26, 1908, alluding to Benjamin

Lochman, the oldest photographer in Allentown (æt. 82), in the following terms:—

"Mr. Lochman relates an interesting experience he had in connection with the developing of daguerreotypes. As a young man he was a consumptive and had frequent hæmorrhages. It was his physical weakness, indeed, that induced him to take up daguerreotyping as a calling, which would not overtax his strength. In developing the plates iodine, in connection with other chemicals, was used, and the constant inhaling of its fumes, he claims, is what healed his lungs and made him well and strong. . . . Not many years ago Mr. Lochman received a letter from a scientist who was impressed with the fact that many men who were weak and frail when they started in that business, rapidly became stronger, and that vital statistics showed that the great majority became old men.

"Numerous cases of dropsy owe their cure to potassium iodide, including ascites due to splenic or hepatic induration, and hydrothorax depending upon cardiac obstruction. It has cured acute hydrocephalus from granular meningitis, but chiefly when mercury had been previously administered, and chronic hydrocephalus under similar circumstances. In these intractable diseases it should never be neglected; and in regard to tubercular or granular meningitis, which so rarely recovers under any treatment, the use of mercury, followed by iodide of potassium, cannot be too strongly recommended. In not a few cases also presenting signs of tumor of the brain, whether syphilis or not, the symptoms have been greatly mitigated, and sometimes quite removed by this medicine. Seguin insisted on the necessity of administering very large doses in all such cases."[1]

It would take up too much space to quote authorities on the curative action of iodine in some forms of rheumatism; also in lead poisoning, which has so well been described by Orfila and Melseus and William Budd.

Fournier, of Paris, states that mercury and potassium iodide are not reagents of syphilis only—that is, an affection favorably affected by them is not necessarily syphilitic. At a meeting of the Société Française de Dermatologie et Syphilographie, he (Fournier) reported a case in which a patient had consulted him for enormous ulcers of the hand and arm, resembling in all points tuberculous lesions. Not only did the patient deny having had syphilis, but no sign of the latter could be discovered. Moreover, the patient was suffering from pulmonary tuberculosis, and the cutaneous lesions dated from many years back. In order, however, to insure his results, a subcutaneous injection of calomel was administered. This gave rise to a stomatitis, but also caused great improvement in the local condition of the patient. A second and a third injection were given with so much success that only some slight thickening of the skin remained in the region where the ulcers had existed. Fournier thinks that, after all, the question should be asked whether calomel did not have a curative action in some varieties of tuberculosis.

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[1] Medical Record, xxi, 50.

Angagneur, of Lyons, has reported the case of an 18-year-old boy suffering from tuberculous lesions of the legs, and who had a toe amputated for tuberculosis, which had lasted for about ten years. The administration of potassium iodide caused very great improvement, as it did in another patient suffering from similar lesions. Jacquet also reported a case in which a recently delivered young woman suffered first from puerperal infection, followed by acute osteomyelitis of the left thigh. The administration of Gibert's syrup caused almost immediate recovery.

In the United States *Naval Bulletin,* April, 1908, Surgeon Barton Lisle Wright, of the United States navy (as stated by Sajous in the October, 1908, number of this journal), writes:—

"1. We have shown the almost immediate improvement in the general condition of the patient following the administration of mercury: the slowing of the pulse, the reduction of temperature, and the gain in weight.

"2. We have conclusively demonstrated that it will cure extremely advanced tubercular ulceration of the larynx and pharynx in a remarkably short period of time.

"3. We have shown that it produces marked improvement in advanced pulmonary lesions, and that it also has a decided beneficial action in tuberculous glands."

Saboraud states that the only two known cases of human glanders which had recovered had been taken for syphilis, and, consequently, were treated with mercury. One was reported in the *Vrach,* St. Petersburg, by Dr. M. K. Kondrovski, entitled "Glanders in a Man, Treated with Mercurial Inunction," 1891, xi, 717. The other was reported by Dr. T. K. Gralevoski, published in the same journal, 1893, with the same title.

SEASONAL INFLUENCE ON SUICIDE.*

By W. F. R. PHILLIPS, M.D.,

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If the vital statistics of countries within the temperate zones be examined with reference to deaths by suicide, it will be found that there is a regular annual rise and fall in the number of deaths so recorded, and that the greatest number coincides with the warmest part of the year, and the smallest number with the coldest part of the year. So uniform and so universal is this fact that I shall not burden you with any statistics of my own collecting, and with but few of those of others. The following table taken from a paper read by Dr. Ogle before the Royal Statistical Society in 1886, shows the general trend of all statistics of suicidal deaths:—

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* Read before the American Climatological Association, June 5, 1909, Fort Monroe, Va.

Distribution of Suicides in London by Months of Equal Length, per 10,000 Suicides, 1865-84.

January	732	July	905
February	714	August	891
March	840	September	765
April	933	October	772
May	1003	November	726
June	1002	December	697

The amplitude of variation in incidence, shown by this table, is sufficiently near enough to accuracy to be said to be true of all countries, slight differences in the maximum and minimum times of occurrence excepted.

Thus Morselli found that the month of the greatest number of suicides varied somewhat in different countries and with different nationalities. According to him May is the month of maximum suicides in Ireland, Saxony, Austria, Sweden and the Netherlands; June, in France, Italy, Norway, Belgium and Denmark, and July, in Switzerland, Bavaria, Württemberg and Baden; and, according to Leffingwell, the suicides of the Japanese Empire will be found to recur in each session of the year in almost the same proportion as in Western Europe. Dexter, in his studies of suicides in the cities of New York and Denver, found the same general agreement. Midwinter, without exception, is the period of fewest self-inflicted deaths.

Here then we see presented a vital phenomenon, with a regular rise to a maximum at one part of the year, and an equally regular decline to a minimum at another part of the year, and the two parts of the year related to each other in extreme meteorological antithesis.

When two or more apparently independent series of events are observed running either in direct or inverse parallelism as to time, quantity, occurrence, or other forms of manifestation, it is but natural that we should associate them in a causal relation, one to the other. With the discovery of the statistical facts as to the periods of maximum and minimum incidence of suicide, came also the idea of seasonal and meteorological influences.

Morselli attributes the seasonal influence chiefly to the physiological effects of high and low temperature. "To estimate justly the influence of the annual temperature on suicide," says he, "it suffices to observe the difference between the intermediate and the extreme seasons; in general, autumn and winter on one hand, spring and summer on the other, form two very distinct periods in the year which denote that the falling and rising of the temperature produces the most marked disturbance on the psychological activities of man," and he gives as the result of his studies a general law as to the monthly distribution of suicides, which is as follows: "The number of voluntary deaths goes on regularly increasing from the beginning of the year to June, in which month it commonly reaches its maximum, and hence falls also with regularity to the end of the year, the minimum falling generally in the month of December."

Strahan accounts for the seasonal variation in suicide in this wise: "There is an annual rhythmic rise and fall which affects all animate nature. With the approach of spring and the increase of temperature, there is a

general wakening from the period of comparative rest in which the preceding cold season has been passed. With this awakening every function is quickened, and the procreative, which is the highest of all functions, is excited to most vigorous action. During this period of spring and early summer the organism is working at its highest tension, and every function of mind and body is more active than at any other period of the year. It is not surprising, then, that at this portion of the yearly cycle we should meet with the most breakdowns of the machine.

"In this annual quickening of the functions of the organism we do not find the true cause of suicide, any more than we find a true cause of crime, immorality or madness. It merely acts as an exciting cause of those predisposed. The normal or healthy person passes through this natural rhythmic vital disturbance without injury; it is only the abnormal to whom it acts as an incentive to unnatural acts. To the healthy individual the heightened vital activity of spring no more suggests suicide than it does madness; to the abnormal it suggests that to which he is already predisposed. Thus, while one gives way to crime or the indulgence of the passions, another will become insane or commit suicide. It is a disturbing agent of great power, and acts in overthrowing the unstable exactly as accidental disturbances of equal power may act at any period."

Too much emphasis cannot be laid upon Strahan's position that the annual seasonal variation in temperature, or even extending the idea to include the general meteorological conditions, is not the all-sufficient cause of self-destruction. The seasonal meteorological changes are always but secondary to some more potent endogenous activities. Nor should it be understood that all suicides are equally affected; many unquestionably are no more influenced by meteorological changes than they are by the rise and fall of the tides, or the changes in the styles of ladies' hats. We must distinguish in the causes that prompt to self-murder. Strahan has given what seems to be an excellent working, if not accurate psychological, classification of suicides into rational suicides, and irrational or true suicides. Rational suicides proceed from religious belief, as with the Brahmins, from grief and affection for dead friends, from a desire for notoriety, and from motives that others may gain by the death as beneficiaries of insurance, etc. (and we may add those who seek by death to escape disgrace or punishment). Irrational or true suicides are those where the individuals who leave life do so because they are disgusted with and tired of living, or have an instinctive craving for or a love of death. The true suicides, he subdivides into three classes:—

"First, that in which there is mental aberration.

"Second, that in which the act depends upon irrestible impulse and in which there is no mental aberration, and

"Third, that in which certain predisposition makes it possible for a slight shock, trial or irritation to awaken the unnatural impulse."

It is difficult to conceive how rational suicides could be influenced by meteorological environment, since they are based solely upon reasoned out

objects and ends to be accomplished. The true suicides, however, may and must be so affected, otherwise we could not have this great and universal rhythm in deaths from self-destruction. Unfortunately our statistics are not so gathered as to enable us to make the scientific analysis needed to establish or overthrow our hypotheses or suppositions. In order to get more light on the subject of suicide and the suicidal impulse, thought or desire, we must call into consideration other acts and occurrences to aid us. Apart from the obviously insane among whom suicide is so common, it would seem that we are justified in regarding the impulse to self-murder as closely allied in psychological development to the impulse to homicide, to assault or to any of the other acts denoting temporary loss or surrender of self-control. Now all these acts show a wonderful uniformity in seasonal occurrence with that of suicide. Thus murders, assault and battery, rapes, crimes against the person, and illegitimacies show the same seasonal maxima and minima as shown by suicide. These are admittedly things due more largely to loss of control of temper, will or appetite than to premeditation. This loss of control of self may come from over or undue, and explosive, development of impulse or from an inverse weakening of the powers of the ordinary will. While the end result is the same, the predisposing and inciting factors in any two cases may be very different and even opposite. Thus, in one case, rise in atmospheric temperature, lessening the body energy to be expended as heat, leaves it to manifest itself as muscular power, and this new sense of physical prowess results in the quick resentment of a fancied or real wrong that, previously, a lesser sense of prowess would have passed by, self pride being soothed with the idea that prudence was the better part of valor. On the other hand, another case under like temperature conditions but different endogenous conditions, responds not with physical force, but with nervous irritability that manifests itself solely in impotent rage or hysteria.

If we be right in the motive of our true suicides, that of disgust or ennui of life, or a love for death, we should naturally expect to find in such persons evidences of deficiency of self-control, and such seems to be the consensus of investigators who have had much experience with suicides and attempted suicides, either personally or statistically. Morselli sums up his conception of the subject thus: "Suicide is an effect of the struggle for existence and human selection, which works according to the laws of evolution among civilized people," and his general conclusion seems to be that suicide is merely a mode of confession of defeat in the struggle for those inherent demands of life, sustenance and sexuality. It is therefore only the physically and neurologically unstable that succumb, that furnish the true suicides. What then has seasonal influence to do with such? The general effect of temperature upon protoplasm is well known; within certain limits and conditions growth, development and activities are in proportion, not accurately measurable but yet unquestionable, to the degree of temperature, and this increased functioning is, as already referred to, considered by many as the only etiological effect of season upon suicide—

simply exciting the machine to work beyond its mechanical strength, with the consequent breakdown.

Many of the seasonal suicides may be so accounted for, but this explanation is not satisfying enough; it is too physiologically broad and indefinite. I am not able to offer substitutes that shall be based upon better foundations than those quoted, namely, hypotheses; but still, even at the risk of only engaging in speculating, I shall intrude upon your attention two suppositions that have for some time been in mind and regarding the tenability of which it may be possible at some future time to investigate experimentally, at least as far as the limitations imposed by the nature of the subject will admit.

The first is based upon the idea of a cumulative irritability of the nervous system generally, resulting from extensive and more or less continuous low-grade irritation of the skin, and the second upon a possible effect of the annual variation in the quality and quantity of the average daily dietary. Both these conceptions are essentially the effects of seasonal changes, and both are more largely the result of temperature rise and fall than of any other single meteorological or seasonal element. Again, both may act together or separately to accomplish the same result; that is, conceivably they may. Physiologically these two conceptions, or permit me to call them hypotheses, are closely associated, both being dependent for their ultimate manifestations upon their effects upon the central nervous system, which they reach through the media of the different afferent nerves of the skin and the viscera, respectively.

Taking the first hypothesis, that of skin irritation, it is unnecessary to more than remind you that the skin, as a whole, is the largest sense-bearing organ of the body, and comes more in contact with the variations of environment than any other part of the organism. It is never at any time free from irritation or stimulus of some sort, though the effect produced may, and ordinarily most frequently does not, reach that degree or quality that produces conscious sensation or attracts special attention. But this low-grade irritation by that peculiar property of nervous matter, cumulativeness, produces effects, often of explosive character, just as certainly as though it were consciously perceived. Illustrations will suggest themselves. In the normal individual there is simply the appreciation of the ordinary feelings of comfort, well-being, exhilaration, or, on the other hand, the various negative phases of these sensations, together with the more or less general recognition of their causes and of an effort to either remove their operations or to patiently endure them, as the case may require. But in the abnormal may it not be different, and that often altogether so? Let us consider our own skin sensations under certain conditions, such as a moderately high temperature, somewhere close to 80 degrees, and with an average relative humidity of 65 per cent. Under such conditions we feel comfortable enough if at rest, or with but little or gentle exercise. However, let the temperature rise, say, but two or three degrees, and then mark the change: perspiration begins to become sensible, the skin more

sensitive, and clothing, before perfectly unnoticed, begins to stick, and to bind, and to pinch, and to irritate, and the even tempered, urbane member of the Climatological Association of but the moment before, loses his characteristic placidity and amiability just in degree as the temperature mounts higher and higher, and his skin becomes moister and moister and more and more appreciative of the fact of the irritativeness of its clothing envelope, which in itself has not changed one particle from its previous irritative potentiality. Now is there anything statistical to support the idea that such cutaneous sensations, either conscious or subconscious, have any influence on suicides? Yes. Dexter found in studying the suicides of New York and Denver, that they were more excessive upon *warm, clear, humid and windy days,* and particularly was there striking coincidence between high suicide rates and days with high humidity and high wind movement. High humidity impedes evaporation and keeps the skin moist, and consequently more sensitive to all irritants; and the wind by its thousands of molecular impacts against the skin becomes of itself a mechanical irritant in direct proportion to its velocity, and it may be that it also produces irritation otherwise. During the winter and early spring the low temperature keeps the skin relatively anæmic, dry, inactive, and insensitive to much of its immediate surrounding irritation, or, in other words, lowers the conductivity of the skin for stimuli. As the temperature rises with the progress of spring and advent of summer, so the skin becomes gradually more and more hyperæmic and more and more sensitive to its surroundings, and capable of sending inwardly myriads of impressions, mostly subconscious, which make for good or bad feeling, for satisfaction or for dissatisfaction, and which later may in the abnormal, the individual with the germ of the true suicide in his make up, be the determining straw that tips the scales of life to the side of oblivion. As the warm season advances more and more unstable systems will mature and, so to speak, fall off like ripened fruit, until the crop is exhausted. But the cycle of another year brings others to maturation, and so year after year our crop of suicides is harvested with an all too appalling regularity and certainty. If this hypothesis have any truth in it, it suggests then something definite in the way of rational prevention in individuals of suspected inclinations to suicide, and that is careful and intelligent attention to the hygiene of the skin, and especially during the seasons and weathers that throw most work upon it.

Taking up the second hypothesis, that of limitation of the variety of the food supply and considering the temperate zone as a whole, and the average of all classes and conditions of its population, there is little need to dwell upon the obvious fact that we are dependent upon agriculture for our foods, and that these foods are in the ultimate the result of the spring and summer sunshine, rain and heat. While the staple cereals and potatoes form the major part of our food, yet it is essential for the preservation of health that we have for a minimum of the year a certain quantity of fresh vegetables and fruits. Now these vegetables and fruits do not begin to mature till near the summer solstice, and then continue till

frost. From midsummer to midwinter fresh, or relatively fresh vegetables and fruits are plentiful and cheap, and form a large and important part of the dietary of the average individual. But from midwinter on to midsummer they are no longer in such abundance and cheapness, and in the greater number of households have disappeared from the table or, if present, are there by their dried or otherwise imperfectly preserved representatives. Even the meats partake of the same seasonal fluctuation, either actually or relatively. During the summer and early autumn, fresh meat in the shape of fowls and eggs are either themselves sufficiently plentiful and cheap to appear at least weekly upon the average table, or to so lower the price of beef and mutton as to place these within the reach of the average housekeeper. But as autumn passes and winter and spring comes, so passes the fresh and so comes the salt and preserved meats, and well on into early summer they persist. Were we to chart graphically our daily foodstuffs according to quality and quantity as to freshness and variety, we would find striking, if not significant, contrast between these curves and those representing our annual suicides. No one can question the profound metabolic effects that variety or want of variety in food causes. Thus in a fluctuation clearly seasonal in its causation we may have by its influence upon an unstable system another source of increment in our seasonal suicides.

Perhaps all this may be carrying seasonal influences to extremes, but in climatological effects we are not dealing with simple phenomena and immediate effects. What, after all, we are considering is the working of that wonderful complex of effects embodied in the theory of evolution that everywhere confronts us: the struggle for existence and the effort at adaptation to environment.

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PREVENTIVE MEDICINE IN A NEGLECTED DIRECTION.

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There are hundreds of thousands of atypical children in this country to-day and we are only beginning to awaken to the vastness of the problems they make for. They are in the families of the rich as well as the poor. Just here are the *roots* of insanity, feeble-mindedness, epilepsy, criminality and much disease—notably tuberculosis. The death rate among the feeble-minded, due to this cause, is three times greater than among normal people, and late statistics say, for New York State, it is on the increase, and so it

will be until we have scientific studies of the feeble-minded. We know that this disease is largely to be found at the two intellectual extremes of humanity—the idiot and the genius.

Who is to blame for all the woe these children are making for, the medical profession or the educators? Is it one or both? Had they worked more together, long before this we would have had types of childhood and what they stand for in health and disease. Just here great strides might be made along the line of preventive medicine.

G. Stanley Hall defines a type as follows: "A norm to which every individual in a really homogeneous group tends to approach or to vary from, and in a pure race the average persons should be more frequent and around them others should be grouped closely as well as symmetrically. Any individual, although far from a miscellaneous average, may represent a type and illustrate some tendency away from the average in some new direction, or may be a sport leading to a new type.

Our best teachers of the feeble-minded recognize types among these children, and that no amount of education will change one type into another.

The Mongolian type, so called, are as much alike as peas in a pod; much more so than brothers and sisters in one family. Although they do not have the same degree of intelligence, it is of a like kind. Their sense of direction is abnormally strong. They average 40 among 1,000 feeble-minded.

With few exceptions they are light complexioned. In all cases they have a characteristic hand. I would add an additional fact concerning the hand. Out of 100 cases the forefinger is longer than the third in 89 cases, and in no case was it shorter.

In public school children I found but 20 in 1000. These children were of a high moral type. This long forefinger is found among college women and in men of high morals. There have been a few scientific studies on the hand. The old masters must have had knowledge of the hand which we of to-day have not. Pictures of "The Christ" are given this long forefinger; Judas has a very short one. The artists gave it to all the Madonnas.

Among all children there are traits, or groups of traits, so marked as to color the entire character of the child, to be known to all who know it—so marked as to bear on the child's future career.

It would seem that we have seven true types and six links (2500 cases studied) sufficiently well drawn to be of real worth to the physician and the educator, but much more work should be done along these lines. I do know that one of these types responds to certain drugs and diseases in its own way.

We know that the normally nervous child makes for our best citizens, and Dr. Sachs has shown that no amount of school work seems to harm him. Not so the abnormally nervous child (not feeble-minded; these are seldom nervous in the ordinary sense of the word).

These abnormally nervous children are very talkative, as a rule—asking a great many questions. They are easily excited or confused.

Phobias and imperative ideas may occur.

Ofttime such children are very responsive to emotional states. Motor

abnormalities are numerous; abstraction and inattention often found. Idiosyncrasies toward animals. Idiosyncrasies of food. A little pain causes a peculiar tremor. Nausea and pain go hand in hand. Hysterical symptoms. Do we have a hysterical type? It seems so, but more cases must be studied.

Many show manifestations in the uro-genital sphere. The nervous children described above *show* fatigue with school work that a night's rest does not repair.

Take 1000 cases of insane and follow back to childhood to their school-days. You will find idiosyncrasies like those just described. The physician and the educator have a duty to these *abnormally nervous* children which they are neglecting. There are very many in our schools, but few recognize that these children are the roots of degeneracy. The special classes for the so-called "backward" is not spending of the taxpayers' money for the greatest good to the greatest number. Special care of these nervous children, would be *economy* for the taxpayer. The public is bound to pay the bills for degeneracy. By giving a faulty education or better training to the so-called "backward," most of whom *are feeble-minded,* doctoring branches and making more in the future, for surely they go out into the world better equipped for harm. Take care of these children who might be said to be two steps back biologically of the feeble-minded child. Recognize the fact that men and women are yet in the making, and by physical and mental training based on child-study, as we find it in some of our universities, aid in developing more balanced individuals and thus cut down degeneracy and disease.

Bosma, in his book "Nervous Kinder," says "Wrong education is a most powerful factor in the causation of psychogenic troubles. If through wrong education moods are not suppressed, good habits not established, training of will power neglected before the age of puberty, and the imagination allowed to run riot, we are in great danger of cultivating the neurasthenic soil on which all sorts of psychogenic affections may grow.

Weed out and put into institutions the idiots. Give home schools to the feeble-minded child. He is not being handled educationally, as he should be. Henderson shows he could be made self-supporting. This problem of the feeble-minded is not so hopeless as most of the superintendents of institutions for such would have us think. *They never taught one of these children,* so how can they know, and few have had a scientific education.

Educate the children, normal and abnormal, and according to their needs the physician and the educator should work together to this end.

Let the physical needs of children be considered *first* in our educational system.

The following is translated from a lecture given by Professor Mosso: "To Paul Flechsig is due the credit of having shown that our cerebral nerve fibers are not complete at birth, and that the white nerve paths come from the medulla, extending from the periphery toward the center.

"In man the brain develops later than in other animals. For this fact that the brain develops so slowly, I am able to discover no other reason than

this, that at birth the organs which effect movements over which the brain later exercises its authority, are not yet developed.

"The brain of man slowly develops up to forty years. Kaes found that up to the *fortieth year* there are found in the cerebral convolutions new plexuses of nerve fibers, which are lacking in younger brains.

"Excitation of the senses and impulses to movement hasten the development of the nerves in question.

"The experiments of Ambrau and Held has shown that if one eye of a new-born kitten is opened to the light, the other remaining closed, the optic fibers of the eye remaining open to the stimulation of light are more quickly surrounded by myeline than those of the other. Another important fact is, that the motor fibers are completed earlier than the sensory.

"These facts must apply to pedagogy (I would substitute for the word pedagogy the department of education), only that science can show how injurious is *precocious* instruction for the development of the child.

"If we wish to hasten the maturity of the brain, we must decide whether the formation of the myeline can better be hastened by stimulation of the senses and intellectual, or better by muscular exercises."

The latter way seems to Angelo Mosso the more natural.

We must, therefore, to begin with, consolidate the motor nerve paths which develop first, and after that seek to develop the portion of the brain concerned with intellectual work.

Diagnosis of morbid conditions of childhood involve something more than mere search for evidence of disease. During the period of plasticity numerous influences prevail in all ranks of life to alter normal growth and organic development by which the foundations of constitutional weakness are often laid. These are, in a great measure, preventable, at least in part.

We must know more of normal growth and the phenomena of development. The facts are at hand, but we pass them by. Normal processes are profoundly modified by peculiarities of temperament, inherited or acquired.

What are we teaching our medical students of the child? Should he not have all the known scientific facts of childhood, mental as well as physical—in health and disease—all, too, that anthropology can give us of the history of the child?

A few who are making for the best in educational matters have this knowledge.

Where is the medical school that will have a chair of child study? The child is father of the man.

Gradually we are awakening to an appreciation of the fact that the same general methods of investigation that are applicable in the study of all biological sciences, may be successfully adopted in attacking the problems of mental diseases and mental deficiency.

Where is the university that will have a department for the solution of these problems?

"The presence of such would show that the leaders of men were as

much interested in endeavoring to increase the public sanity as they are in the results of exploration in the uttermost parts of the earth."

Let us *have* preventive medicine and preventive morals.

We will not get far on the road until we have scientific studies of the feeble-minded, not just psychologists in institutions for such. The physicians in those institutions need psychology. There is a great need for a scientific department as well as an educational department there, to tell us, why do some diseases make for idiocy and not others? Why are a sufficiently large number immune from some of the contagious diseases to make the fact a remarkable one? Why do three times as many die of tuberculosis as among normal people? Why is eczema *contagious* among the feeble-minded? Are food instincts of special idiots of interest to the evolutionist? Why are rudimentary organs in low grade feeble-minded larger than in normal children? The teeth furnish interest to the anthropologist. The study of speech would soon have us using speech-therapeutics in our clinics not only for the abnormal, but for the normal. If speech training were to be introduced into the lower grades of our schools, many a "backward" child would be saved to future usefulness. The speech center and the leg, arm, and finger centers are adjacent to that of music. Finger gymnastics and music are given to assist in developing the right co-ordinations and to develop the motor area of the brain. "Music is the language of the unconscious in us, the expressions of our forebears were more than play" (G. Stanley Hall). I have known cases where music has been the basis of developing the mathematical concept in "backward children." Music trains hearing; mental ability and hearing are correlated.

Make a study of Plato's fourteen boys in his twenty-seven dialogues, and get interested in types, and so know the soils disease grows in; get at the root of these matters.

The following show some of the conclusions drawn after investigations on abnormally nervous children in Chicago, in which Dr. John Dewey was interested:—

Nutrition and feeding have a direct bearing on both physical and mental states. Preference in foods frequently results in the preferred food being better digested. By regulating the diet as to quantity and quality to suit individual preference and needs, better digestion was obtained. A close relation exists between pulse deviation and non-elimination. A close relation exists between deviation and supra-normal and subnormal effort.

There is close relation between baths and sleep. Young nervous children require hot baths at least once a day to help reduce the nervous condition. Emotional tone greatly affects mental effort and physical activity substantiating this relationship; there were found some very interesting points. Emotional tone is greatly affected by the amount of sleep per day. Nervous children, because of their greater activity, require more carbohydrates.

In addition the investigation brought to light facts valuable in tracing the mental deviation back to physical causes.

Stomach indigestion produces acerbity of disposition: over-sensitiveness, fretfulness, irritability.

Obstruction of the small intestine produced variability, erratic conduct, and similar manifestations. Obstruction of the large intestine produced stupidity, languor, accompanied by heavy headaches, particularly over the eyes. Melancholia, moodiness and moroseness were also an accompaniment.

The above will illustrate what might be accomplished were we to have *scientific departments* in our institutions for the feeble-minded.

Editorial

THE PHILADELPHIA WATER SUPPLY.

"Philadelphia water is as good as is furnished to any city, and entirely satisfactory."—*Resolutions of Councils, September 16, 1909.*

"There is not a filter bed in the entire system that is furnishing pure water—there never has been pure filtered water in this city."—*Interview President Municipal Improvement Co., North American, September 22, 1909.*

THE controversy regarding the Philadelphia water supply has assumed such shape as to make it of the deepest interest to its physicians and people. The resolution of the City Councils quoted above would indicate that Philadelphia possesses the most modern, best equipped and scientifically operated filtration system in the world. If this statement is not true it is calculated to do great damage, for, reassured by evidence, authoritative and apparently trustworthy that they have pure water, the people may in the security of that assurance consume it for a beverage and for cooking purposes with lesser precaution as to deleterious results on account of the confidence thus inspired.

In controversion to the resolution of the Councils, it is claimed by the President of the Municipal Improvement Co. that Philadelphia's great filtration plant is rendered virtually useless through incompetence of the men who handle it; that analyses of raw water taken from the Delaware and Schuylkill Rivers, from the affluent wells and from the distributing reservoirs, analyses soon to be made public, will show how this incompetence is affecting the water being dealt out to the public and what dangers its use involves. Need it be urged that the health of the community is mainly dependent upon the purity of the total amount of water it consumes, and that we are dealing therefore with the most important of the many factors which affect the death rate of our city?

Which of these claims is right? Whom shall we believe? How shall this important question be settled? Is it not one which belongs essentially to the domain of the physician, who alone in the community is conversant with its many scientific phases, especially those concerned with the preservation of health? His daily training as a diagnostician endows him with discernment as keen as his voice is far reaching, and were he in the present issue to study the ques-

tion in detail and express an unbiased opinion, the public would be strongly influenced by his advice in whichever direction it would tend. *Do the contending parties have confidence enough in the justice of their cause and the completeness of their proof to place its decision with the profession best equipped to render a just and impartial verdict?*

We repeat again that *both* of the two statements quoted at the beginning of this article, so absolutely antagonistic, *cannot be true;* that no more important question, than that as to *which* is true, is to-day before the medical profession and the people of Philadelphia. On one side is the boast of the city government as to the purity of the water which it is giving to its citizens; on the other is the official statement of a corporation whose engineers, chemists and bacteriologists it is claimed are second to none in America, that the supply is absolutely unfit for use and that the water given the people of Philadelphia is better before being filtered than after.

It will not do for any medical journal or any medical man to remain inactive and silent under such conditions. It is a *vital* matter, a matter connected in every manner with the well-being of Philadelphia and its people that the truth or the falsity of these respective claims be established. If the water the people of Philadelphia are receiving is what it is claimed to be by the resolution of the Philadelphia Councils, its physicians and people should know it that they may rest secure in that knowledge and not be harassed by tormenting fears and anxieties, and on the other hand, if it is as vile and disease-laden as is claimed by the President of the Municipal Improvement Co., that fact too should be known at once that the city may rise in its power and take immediate action toward the correction of such a fearful condition.

The Monthly Cyclopædia and Medical Bulletin calls upon all of its medical friends and its friends associated with collateral science to assist in the quick solution of this problem. It calls upon the physicians of Philadelphia to take up this matter at their society meetings, in their laboratories and clinics and after making investigation to make public the results of that investigation; it calls on the daily papers of Philadelphia to make quickly public whatever facts these investigations may develop.

If we have the best water in the world, let us so establish that fact that we may pride ourselves in the knowledge and make it known far and wide to the benefit of the city and its material interest beyond the reach of criticism, question or doubt, and if, unfortunately, the reverse should prove the fact, then let the city show to the world by the quickness of its action that Philadelphia, if slow, is nevertheless never slow when established facts that threaten the integrity, the health and prosperity of its people confront it.

In earnest appeal to all medical and collateral interests and in the full confidence that the President of the Municipal Improvement Co.'s statement, if a slander, shall be quickly refuted, and, if the truth, shall by the power of the medical profession of Philadelphia and the patriotism of her people soon cease to be a fact, this editorial is written.

C. E. de M. Sajous.

Cyclopædia of Current Literature

ABDOMINAL OPERATIONS, EARLY RISING AFTER.

The writer does not believe in keeping patients upon whom laparatomy has been performed several weeks in bed. On the contrary if there are no indications of fever he is inclined to let them get up after a few days, dependent greatly on the patient's own desire. But when there is fever the patients are kept in bed, as he believes that early rising may do harm in such cases. The objections usually urged, dangers of secondary hæmorrhage, breaking open of the wound, and embolism, he considers theoretical rather than practical. Hartog (Berliner klinische Wochenschrift, March 15, 1909).

ABDOMINAL OPERATIONS, ERUPTIONS AFTER.

In an attempt to discover the cause of the skin eruptions seen so often after abdominal operations, the author found that these occurred most often in patients who were given an enema of soap suds made from common yellow soap, but if castile soap were substituted no eruption followed. This was corroborated by the fact that in exchanging the yellow for the castile soap in other patients who had these eruptions it was found that the yellow soap produced rashes, whereas the castile soap did not. It was then found that the cheap and common yellow soap contained a considerable quantity of resin, and to this the writer believes the cause of many of the rashes seen after abdominal section must be attributed. F. J. Shepherd (Journal of Cutaneous Diseases, July, 1909).

ABDOMINAL PHENOMENA WITH INCIPIENT PNEUMONIA.

Two cases have been encountered by the writer in which the syndrome deceptively simulated appendicitis but in a few days the abdominal symptoms subsided as severe pneumonia became installed. In one of the cases there was an interval of nine days before the symptoms of pneumonia became manifest. In both these cases and in 13 of 21 reported by Bennecke the pneumonia terminated in an abscess or other serious complication.

The necessity for differentiating these cases of "pneumogenic abdominal shock" from actual appendicitis is beyond question, as a useless appendicectomy would weaken the pneumonia patient. The most important points in differentiation are: (1) the expression of the face, which is not so distressed as in appendicitis; (2) the tongue, which is generally moist and not much coated; (3) the rapid breathing; (4) the rigidity of the abdominal wall, which is never so circumscribed as in beginning appendicitis; the abdomen is only superficially tender, deep pressure is not particularly painful; (5) careful objective examination of the chest, regardless of the assumed appendicitis. Differentiation may be rendered much more difficult by drugs previously given. In the writer's first case the patient was subject to lead colic and opium was given at first, which

masked the diagnosis for a time. It is probable that the pain caused by the inflammation in the lung is reflected into the abdomen. The irritation may even be transmitted through the sympathetic nervous system to the splanchnic nerves, inducing tympanites. B. Glaserfeld (Berliner klinische Wochenschrift, Aug. 2, 1909).

ABORTION, TREATMENT OF.

In the course of a clinical lecture the author remarks that the main task in treatment of abortion during the first seven months is to arrest the hæmorrhage, but later the task is to ensure the complete emptying of the uterus. He warns that the curette should never be used with a vesicular mole as it is impossible to know the extent of the destruction of the uterus wall. After the uterus has been cleared with the finger, he rinses it out with two or three liters of 70 per cent. alcohol in every case of abortion. Franz (Deutsche medizinische Wochenschrift, July 1, 1909).

ACHYLIA GASTRICA.

The various causes that result in achylia gastrica probably differ in nature: (a) Those that accompany pernicious anæmia apparently result from a definite atrophy of glandular parenchyma of the stomach. (b) Others seem to follow gastritis. (c) Others appear to be secondary to general infection, possibly from gastritis, as is seen after typhoid fever, syphilis, etc. (d) There remains a large group in which from unknown causes, the secretion becomes more and more depressed until complete achylia is established. It has been suggested that the trouble in the beginning is functional, and that subsequently gland structure disappears, similar to atrophy from lack of use in other regions. In attempting to follow the course of cases apparently about to become complete achylia gastrica, there is confessedly a source of possible error through misinterpretation. A case which shows a trace of combined chlorides or a faint biuret reaction may go on to complete loss of secretion; but, on the other hand, secretion may be found restored if the case is studied long enough. Nevertheless, these patients should be studied in relation to achylia gastrica, because in them only are we able to discover achylia gastrica in its process of development.

The author reports 132 cases, of which number 62 were males, 70 females. Ages were from twenty-one to seventy-two years; but only five patients were under thirty and only one beyond seventy. There were 29 patients between the ages of thirty and forty; 37 patients between forty and fifty; 28 between fifty and sixty; and 25 between sixty and sixty-nine. C. G. Stockton (American Journal Medical Sciences, August, 1909).

ADENOIDS IN INFANCY.

The writer criticizes the neglect of adenoids in early infancy as they interfere with the proper development of the child by reflex action, by the irritation they produce and the obstruction they cause. The post-nasal pharynx at birth is a space only one-quarter inch high by one-third inch wide, so that a very slight adenoid hypertrophy at this period will cause obstruction. At the end of the first year it is nearly doubled in size. It often produces symptoms in the first days of life and the mistake is sometimes made of diagnosing specific disease. The snuffles are specially marked while the child is nursing and result from an adenoid which produces irritation, and if

large enough to obstruct the pharynx, there is mouth breathing. Other causes may produce mouth breathing but adenoids do so most frequently during the first year of life. A third indication of the condition is the appearance of recurrent colds which during the first year are usually caused by adenoids. Another most characteristic sign is a persistent cough, sometimes simulating whooping-cough, without any other indication in the pharynx or bronchi to account for it. A fifth and most dangerous condition is otitis media. It is not always easy in a very young infant to determine the presence of adenoids, but it can be done by rapid manipulation. The right index finger being rapidly passed into the mouth while the jaw is held open by the ends of the fingers of the left hand pressing on the teeth, the rough surface of the adenoid can be detected by the skilled physician and sometimes so quickly that the baby does not even cry.

The author describes the operation of removal of adenoids which can be done quickly without an anæsthetic and with very little shock or lasting fright. If an anæsthetic is used it should be nitrous oxide and only enough to produce primary anæsthesia and the patients should be warned of the possibility of a lympathic constitution and the dangers of anæsthesia in that case. Adenoid hypertrophy which causes persistent symptoms should be operated on as early as the third or fourth month of life. The operation should be done rapidly and without an anæsthetic. R. G. Freeman (Journal American Medical Association, August 21, 1909).

BUTTERMILK IN INFANT FEEDING.

The superiority of buttermilk in ions adapts it better for infant feeding than cow's milk. Human milk contains little albumin, little ash and large proportions of ions; cow's milk, much albumin, much ash, few ions, while "buttermilk gruel" contains much albumin, much ash and quantities of ions. Cow's milk contains casein in the form of casein salt, while in buttermilk it is in the form of casein acid, which explains its greater digestibility.

The writer regards the introduction of buttermilk into infant feeding as not only a progress in respect to practical results but also in the deeper insight it allows into the desiderata of infant feeding. He approves of the "buttermilk gruel," which is made of sour cream, the acidity not too pronounced. The buttermilk must be fresh each day; one liter is mixed with 60 Gm. cane sugar and 15 Gm. wheat flour, boiled up three times and then distributed in sterilized bottles each representing one meal. The ions in the buttermilk evidently cause inversion of the cane sugar to some extent. H. Koeppe (Deutsche medizinische Wochenschrift, June 17, 1909; Journal American Medical Association, July 31, 1909).

ECZEMA, TREATMENT OF.

A number of patients with eczema are reported by the author, who had been successfully treated with crude coal tar, which he regards as superior as a siccative and antipruritic to all other topical applications. The agent is employed in the following manner: The surface to be treated is first thoroughly freed from crusts and scales and then carefully washed with boiled water, and if not too sensitive it is afterward soaped and wiped off with ether. The tar is then applied in a thick layer and allowed to dry for a considerable time, the longer the better, the drying being an important part of the

technic. When it has dried as long as possible, not less than twenty minutes, several hours if possible, it is powdered with talc and enveloped in a soft cloth. If the skin is not too much inflamed nor the oozing too abundant, it is well not to touch the dressing for two days. If the inflammation and oozing are marked it is useful to dress the parts with a simple zinc paste the next day. After five to six days the application of the tar may be repeated. Usually three to five applications are sufficient for a cure. Exceptionally it may excite inflammation, but the writer finds that it is better tolerated than almost any other local remedy. Brocq (Bull. de la Soc. Franc. de dermat. et de syphil.; American Journal Medical Sciences, August, 1909).

ELEPHANTIASIS, TREATMENT OF.

Dr. Dubriel de Broglio, of the French colonial medical service originated a treatment of elephantiasis consisting of the internal administration of 30 drops of tinctura ferri chloridi three times daily, in combination with bandaging of the affected limbs and complete rest in bed. The writer determined to make the experiment of administering the tinctura ferri chloridi without bandaging and permitting the patient to follow his usual mode of life. In every case so treated, the patient has shown decrease in the size of the affected part within a few weeks, and the effect on the fever is apparent even sooner. He therefore concludes, as a result of these experiments, that tinctura ferri chloridi has a marked effect on the elephantoid process, decreasing the size of the affected parts and restoring function to an even greater degree. Its most marked effect, however, is on the attacks of elephantoid fever, these attacks being markedly lessened in severity, the interval between attacks being greatly lengthened, and in several of the cases the attacks have apparently ceased. In one of prolonged elephantoid fever with very marked chyluria of three weeks' duration, the chyluria disappeared entirely within sixty hours under the administration of tinctura ferri chloridi alone. So far as can be judged from the number of cases treated, elephantiasis appears to be arrested by this treatment if continued for six to twelve months, and if some method can be devised in conjunction therewith to dispose of the elephantoid tissue already formed, the author believes that a cure may be looked for. P. S. Rossiter (United States Naval Medical Bulletin, July, 1909).

EPISTAXIS, TREATMENT OF.

The essential thing to do in order to stop a too abundant epistaxis is to plug the nasal passages properly and effectively. This may be done by taking a strip of aseptic, absorbent cotton, such as comes in layers, and twisting it round and round, so that it becomes the size of the little finger; then with a good light the lower and middle meatus should be filled as far back as possible, on one or both sides of the nose, using a nasal speculum, and a director or stiff probe for the purpose. Post-nasal plugging is rarely called for. When the epistaxis is slight, or moderate, it is as a rule unwise to attempt to stop it. Cold may be applied to the frontal region, or a little cold water may be snuffed up. Nature not infrequently allows bleeding from the nose as a relief from symptoms or as a protection from other troubles more important. Profuse nasal hæmorrhage, arterial in character, comes from the artery of the septum, not far back from the anterior nares. A saturated

solution of copper sulphate, applied one or more times by means of a cotton-covered probe, will probably cure it. This the writer considers the best local application to make and is superior to chromic acid, silver nitrate, or the electric cautery. Beverly Robinson (New York Medical Journal, July 31, 1909).

EXOPHTHALMIC GOITER.

A new lid sign has been observed by the writer. It consists of the following manifestation: While on downward rotation of the globe the lower lid is gently fixed, the patient is then requested to rotate the globe rapidly upward while gentle retraction is made on the lower lid; the globe now ascends in an unsteady manner—much in the same way as the upper lid does in the von Graefe's sign. It is markedly accentuated in the presence of an exophthalmos, but is just as variable in its appearance as any of the other symptoms and no more value is to be attached to it than to any of the preceding ones. It has been found more often in the absence of exophthalmos than with it—however, most often in conjunction with a von Graefe or Gifford sign. G. F. Suker (Ophthalmic Record, July, 1909).

HÆMOPTYSIS, TREATMENT OF.

If the smallest amount of blood staining is noticed in the sputum it should be looked on as a danger signal, and the patient ought at once to be put to bed. Calomel gr, ij, iij, or iv, should be given, depending on the patient, followed in the morning by 3j or more of magnesium sulphate; if necessary, this may be repeated in the day. The patient remains in bed for a couple of days, taking the magnesium sulphate each morning, and if no more staining appears he is allowed to get up, beginning with two or three hours the first day. If the staining continues while the above treatment is given, the amount of milk may be reduced to one pint daily and the patient is, of course, kept in bed till the sputum is clear for at least three days.

Acute hæmoptysis is treated by propping up the patient in bed. Amyl nitrite, minims 10 to 15, is inhaled. In a slight hæmorrhage this is usually sufficient. Smaller amounts than 10 minims do not usually have much effect. In larger hæmorrhages, particularly when the nose gets blocked up with blood it may be necessary to put from 30 to 60 minims on a piece of lint and hold it over the patient's mouth. In some cases, this has been repeated, and the only complaint the patient made was that it produced a feeling of nausea. Turpentine (m. xxx to lx) may be used as an inhalation when amyl nitrite is not at hand, or spirits of turpentine (m. x to xxx) may be given internally and repeated. Morphin has been given with good results in slight cases; its action is probably due to the relief of anxiety from the sedative, with consequent quieter action of the heart. Adrenalin (m. v of a 1 to 1,000 solution) has been injected. It is said to be useful in cavity cases where it is likely that the hæmorrhage is due to the erosion of a medium-sized vessel. On the other hand, it is said to be contraindicated when the hæmorrhage is from a ruptured vessel, but is useful in congestive hæmorrhage.

It should be a general rule that when the hæmorrhage is large and the cavity is known to be present, the patient should be made to lie on the side on which the cavity is located. Subsequent to acute hæmorrhage the patient is kept in bed, if possible, propped up a little. Purgatives are given, beginning with calomel (gr. ij to iv), followed by magnesium sulphate, one, two or three times daily; the

amount and time must depend on the patient's condition. Milk, one pint, must be given in twenty-four hours, and all other fluid cut off as much as possible, and the patient fed on solids. In some cases calcium lactate, gr. xv, has been given thrice daily for three days and then omitted for three days, and so on. Or calcium chlorid (gr. x to xlv) in water or milk, every four or six hours, may be given in a similar manner. These calcium salts increase the coagulability of the blood and thus tend to check hæmorrhage. It is not wise to examine the chest too frequently during or immediately after an attack of hæmoptysis. J. E. Squire (Clinical Journal, June 16, 1909).

LARYNGEAL TUBERCULOSIS.

Tuberculous hyperplasia in the larynx has not infrequently undergone resolution, in whole or in part. Unmistakable tuberculous ulcers have occasionally healed and remained healed. Favorable negative qualities have characterized in common the cases which have proved to be capable of arrest or recovery; for instance, the laryngeal hyperplasia has been less progressive, less diffused, and less prone to ulceration; the underlying pulmonary infection has been less extended; there were fewer tubercle bacilli, a lower pulse-rate, and less emaciation. These qualities persisting, the patients who are capable at least of a hopeful resistance, can be distinguished, thus justifying every effort at any sacrifice to invoke the methods likely to arrest the disease and lead to recovery, including intralaryngeal surgery when the lesions in degree and kind are suitable for it. In like manner the nonresistant type should be recognized and those patients guarded from the privation and distress which surely follow in the wake of an indiscriminate exposure to the elements and to the hardships of travel in distant climes. In them surgery is contraindicated excepting to prevent air hunger and suffocation, or to prevent starvation by the removal of some particularly painful impediment in swallowing. W. E. Casselberry (Journal American Medical Association, August 7, 1909).

LOBAR PNEUMONIA, EMPYEMA AND DELAYED RESOLUTION IN.

From a study of a series of cases in lobar pneumonia, the writer concludes that in the majority of instances empyema may be regarded as a complication of pneumonia, rather than a sequel. It occurs relatively much more often in the colored than in the white race. Fever was the only manifestation always present. The physical signs are variable, and it is well to remember that vocal fremitus may be retained, even with a considerable amount of exudate. Of the physical signs, changes in the breath and voice sounds were the most useful single manifestations in diagnosis. The repeated use of the needle in all doubtful cases is important.

The factors usually considered to be of importance as affecting the occurrence of delayed resolution, such as apical involvement, advanced age, debility, and cachexia, do not seem to have any influence. As regards age, three quarters of the patients were between the ages of seventeen and forty years. The conditions which did seem to affect the incidence especially were (a) color and (b) involvement of the lower right lobe. The colored showed a relative high incidence as compared with the white race. The lower lobe of the right lung was concerned much more frequently than any other, both in the total number of cases

and relatively in proportion to the number of cases in which it was involved in the pneumonic process. The cause of this is obscure, unless it be diminished movement on account of the relationship to the liver.

The physical signs show great variation and no general description can be given of them. This applies both to the signs during the continuance of the delayed resolution and during clearing. The diagnosis must frequently offer difficulty and can often only be made by exclusion of other possibilities. Empyema and tuberculous pneumonia are the conditions which give the greatest trouble.

As regards prognosis, while the danger to life is not great, it is never safe to predict absolute restoration in the lung. Permanent change may appear in a short time. The use of the x-rays is the most hopeful therapeutic measure, but these must always be used with caution and only after the diagnosis is positive. Thos. McCrea (Montreal Medical Journal, July, 1909).

LUPUS ERYTHEMATOSUS, SOLID CARBON DIOXID IN.

During the last two years the writer has employed only the solid carbon dioxid in the treatment of lupus erythematosus, and has found it very effective. Being a solid body it can be whittled into any desired shape. The strength and amount of application can be gauged with the utmost nicety by varying the time and the pressure. Solid carbon dioxid, however, has further advantages. It is a cold cautery, and therefore an anæsthetic cautery. This is a most important point. While other efficient cauterizing agents, almost without exception, are so painful that, save with patients of considerable fortitude, a local anæsthetic at least is required when they are used, carbon dioxid can be employed on women and children without any trouble at all. The intense cold itself is a local anæsthetic. The pain at the time of the application is trivial; a few minutes later there is a moderate amount of burning similar to that after a frostbite. This wears off entirely in an hour or two. W. S. Gottheil (New York Medical Journal, July 3, 1909).

NAUSEA.

The symptom of nausea has received insufficient attention from medical men. The author enumerates the causes, including parasites, especially intestinal, arteriosclerosis, retention of urine from prostatic hypertrophy, brain tumors, uræmia, and icterus. In these cases the nausea is accompanied by other more prominent subjective and objective symptoms. It is rare in gastritis, but may be found in connection with vomiting in conditions of stasis, and is common when there is abnormal formation of gas in the stomach or intestine. Of the cases in which nausea is the prominent symptom the majority are in females and a close connection with the various phases of menstruation is found. Genital and other hæmorrhages are apt to induce it. Slighter causes may suffice to evoke it, and it is frequently purely of psychic origin. A condition of undernutrition is generally present. Nausea is not closely connected with the taking of food, but is more influenced by position and is usually removed or lessened by recumbency. The symptom probably depends on a vasomotor disturbance of the cerebral circulation which is favored by anæmia, but with which the stomach itself has nothing to do, as is shown by the fact that the secretory activity of the organ is unaltered, or, if there is a slight deviation, it is in the direction of

hypoacidity rather than hyperacidity.

The diagnosis is usually easy, but, especially in men, careful physical examination should eliminate all possible organic causes. Even in women, too ready recourse to a psychic explanation may cause a beginning pregnancy to be overlooked. The prognosis is usually good, although there are rare obstinate cases. If the malady is very chronic a long course of treatment will be needed.

In the treatment proper psychic measures should be instituted and rest should be insisted on as the most important remedy. The diet should be easily digestible, palatable, and sufficiently nourishing. Hot compresses to the head have been useful in the writer's experience. Massage is objectionable in the early stages and forced or excessive feeding should be avoided. The bromides are useful in cases of moderate severity. Chloral, which may give good results in mild cases, fails utterly in the severe ones. Chloroform is palliative, but of no permanent value, and cocaine has proved disappointing. Morphine in small doses hypodermically is indicated only in the severe cases, and here the author regards its use as questionable on account of possible serious consequences and of the uncertainty of its effect. While medicinal treatment is of little value, rest and patience will usually lead to success. I. Boas (Berliner klinische Wochenschrift, June 14, 1909; Journal American Medical Association, July 31, 1909).

OVERFEEDING OF CHILDREN.

The taking of too much food of all kinds usually causes such attacks as are described by the laity as biliousness. The attacks recur with greater or less frequency, and are characterized by fever, a coated tongue, foul breath, headache, malaise, often drowsiness; there is often vomiting or diarrhœa or both, and the liver may be somewhat enlarged and tender. A brisk purge and limitation of the diet usually are all that is needed. Too much protein causes, as a rule, much the same symptoms. Sometimes some one symptom is especially prominent, as recurring headache, or recurring neuralgia or attacks of vomiting, or in milder cases periods when the tongue is furred and breath foul without much other disturbance. Too much fat is a frequent cause of trouble, and many children are often intentionally overfed with fat. These are cases of malnutrition in which large quantities of butter, cream, cod-liver oil, and other fats are given with the idea of fattening the child and restoring its normal condition. The result is that the nutrition is not improved, but is usually made worse. The child is unwell, has a pale, muddy skin, and large dark circles under the eyes; one of the most striking features is a coated tongue and exceedingly fœtid breath. There is gastric disturbance and vomiting is frequent, and there is often diarrhœa with the passage of undigested fat in the stools.

The carbohydrate cases are the commonest of all, owing to the fact that a great many children are given large quantities of starches and sugars, not only at their meals, but between meals in the shape of sweets of various kinds, often of the cheaper varieties of candies. Many children have a very low capacity for utilizing sugar, and some for both sugar and starches. As in the other forms the periodicity of the attacks is the most striking feature. Perhaps the commonest form of the attack is recurrent vomiting, although this may be seen in cases in which protein metabolism is at fault. In some instances the attack con-

sists merely of fever, or a sick headache, while in other cases there are attacks of asthma which sometimes follow indiscretions in diet.

Having found out the food factor at fault, an effort should be made to determine about what quantity of that particular food can be utilized, then to keep the child on a diet well within the limits of its powers of assimilation. In addition to this it is exceedingly important to see that the bowels are regular, and a rather good plan is to use some fairly active purge at least once a week. Outdoor life and plenty of exercise are exceedingly important and many patients are greatly benefited by a sojourn in the country, not at a summer resort, but on a farm where a very active outdoor life may be led without too much restriction in the matter of observing social forms. John Ruhräh (Journal American Medical Association, July 10, 1909).

POSTANÆSTHETIC VOMITING, TREATMENT OF.

The most rational way to treat and prevent nausea and vomiting after anæsthesia appears to be to promote in every way the elimination of the circulating anæsthetic. That is to say, the patient should be kept warm so that the skin may act freely, and renal secretion should be helped. For this purpose saline enemata are of great value, and one should be introduced slowly as soon as the patient is back in bed. In some hands large quantities of saline solution are introduced under the skin slowly and for long periods of time after severe operations, and it is claimed that not only is shock diminished in this way, but after-vomiting is much less frequent. While elimination is thus going on, the less put into the stomach the better. There is no call for anything at all except through thirst, and this gives little trouble if enemata or subcutaneous injections are used. Washing out the mouth with lemon juice and water is pleasant for the patient, and helps to allay feelings of thirst. Preventive treatment with glucose, based on chemical theories explaining delayed chloroform poisoning, has been given a trial at St. George's Hospital; the results do not show any marked alteration of the ordinary percentage of cases of after-sickness. J. Blumfeld (Medical Press and Circular, June 16, 1909).

THYROID INSTABILITY.

The term thyroid instability is applied by the authors to a series of morbid conditions between the extremes of myxœdema and exophthalmic goiter. Conditions may be observed in which the symptoms, simultaneous or successive, indicate both deficient and excessive thyroid functioning. This is the result of a general law of nature that an organ functioning defectively strives to restore normal balance, and when this is reached, is liable to go beyond it with an exaggerated function. In the present communication the authors call attention to a special paroxysmal form of thyroid instability. This comprises a number of syndromes, previously classified as neuroarthritism: migraine, periodical vomiting, asthma, urticaria, eczema, attacks of mucomembranous enteritis and waves of chronic rheumatism. These syndromes are encountered in persons with pronounced thyroid instability, and during the paroxysm the whole picture of thyroid instability is observed, while certain symptoms which form part of it had been hitherto latent. Another argument is the connection between these syndromes and the sexual sphere; owing to the close relation between the ovaries and the thyroid the syndrome sometimes leads to

hypoplasia. The most important argument, however, is that thyroid treatment will cure these symptoms and, inversely, thyroid treatment is capable of reproducing them. In myxœdema the thyroid functioning is at such a low ebb that there is no reaction for restoration of balance, and the symptoms are continuous. Huchard comments with approval on the authors' work in this unexplored field, and adds that essential paroxysmal tachycardia is probably due to paroxysmal hyperfunctioning of the thyroid. The influence of the thyroid on vascular affections is a further field that will repay study. Léopold-Lévy, H. de Rothschild and Huchard (Bulletin de l'Académie de medécine, May 18, 1909; Journal American Medical Association, July 10, 1909).

TROPICAL ABSCESS OF LIVER, PREVENTION OF.

Ipecac has been found of great value in the treatment of the hepatic complications of amœbic dysentery by the writer, preventing suppuration if given in the presuppurative stage and preventing recurrences if given after surgical treatment. For the last three years it has been usual to continue full doses of 20 to 30 grains once a day for one or two weeks after the temperature fell to normal, and in smaller doses for some time longer in the more acute cases. Full doses are required, and as much as 60 grains at a time have been administered. However, full effects can be obtained with half that amount, while in feeble patients or women 20 grains usually suffice. In one case only 5-grain doses were given by mistake, and a very acute hepatitis subsided completely, although much more slowly than is usual under fuller doses in other cases. The usual method is to give it as a powder twenty minutes after a dose of tincture of opium, or better, 20 grains of chloral hydrate, no food or drink being given for several hours before and after, the patient being kept as quiet as possible and instructed to try not to vomit. A method used with success in the Philippine Islands, and also recently in Calcutta, is to make fresh 5-grain pills of ipecacuanha, and brush them over with a thick coating of melted salol, which does not readily dissolve in the stomach. The author's plan is to put up the powdered drug in 5-grain doses in keratinized capsules, which do not dissolve in the stomach, but carry the drug into the bowel, where its action is required. This method has done much to overcome the objections to the treatment. L. Rogers (Therapeutic Gazette, June, 1909).

YEAST IN THE TREATMENT OF ABSCESS IN THE EAR.

Six cases are reported by the writer in which circumscribed otitis in the outer ear was treated internally with yeast, taken two, three and four times a day. The tendency to recurring furuncles in the ear was promptly arrested and there has been no recurrence since. The patients took the yeast for about a week. This yeast treatment was supplemented by local application of medicated gauze. Under the influence of the yeast the pain and the morbid tendency rapidly subsided, although the furunculosis had long persisted unmodified by other measures. N. Antenore (Gazetta degli Ospedali e delle Cliniche, May 4, 1909; Journal American Medical Association, July 3, 1909).

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Clinical Lecture

GASTRIC ULCER.

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PHILADELPHIA.

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GENTLEMEN: Here is a young woman, age 22 years; occupation, housewife; nativity, United States; who is a chronic sufferer of gastric pains for the past seven months. She was admitted into the hospital by the chief of our out-patient department.

Family History.—Her father died of cancer of the stomach at the age of forty-nine years, and her mother of cancer of the breast, at the age of fifty-three years. She has two brothers living and in good health, their age being thirty-three and twenty-six years respectively. Her only sister, age twenty years, is living and well. One brother died in infancy. She has no knowledge of her grandparents. One maternal uncle died of cancer of the rectum, and an aunt of typhoid fever.

Previous Personal History.—As a child she had measles, diphtheria and whooping-cough. At the age of 16 years she had an attack of inflammatory rheumatism. She saw her first menstruation at fourteen years of age.

Social History.—She is married and has one child, age two years. Her husband is living and in good health. Her habits are good.

Present Illness.—About seven months ago she first had occasional attacks of pain in her stomach after eating a full meal. In the course of a few weeks later the pain became more severe and at times would not be relieved until vomiting occurred. By experience she soon learned that soft and liquid foods agreed much better with her stomach and thus abstained from solid foods. During the past month she has vomited two or three times and each time the

vomitus contained bright blood. She complains of a localized pain in the epigastric region, two inches to the right of the mid-sternal line.

Physical Examination.—She is emaciated, looks pale and the mucous membrane of the mouth, gums and conjunctivæ present every evidence of anæmia. An examination of the thoracic and abdominal viscera does not reveal any abnormality.

Urinalysis.—Albumin, negative; glucose, negative; specific gravity, 1018; reaction, acid; bile, absent; indican, slight reaction.

Microscopic Examination.—Casts, absent; erythrocytes, absent; leucocytes, absent; phosphates, absent; urates, absent.

Blood Examination.—Erythrocytes, 3,248,846; leucocytes, 8,640; hæmoglobin, 70 per cent.

Diagnosis.—This is certainly a case of gastric ulcer. Her age, the physical condition, the subjective symptoms of localized pain in the epigastric region the bloody vomitus and anæmia are typical symptoms of gastric ulcer. Chronic gastritis, gastralgia and cancer of the stomach should in all cases be distinguished from gastric ulcer.

Differential Diagnosis:—

Gastric Ulcer.	*Chronic Gastritis.*
1. Disease is primary.	1. Secondary disease of heart, liver, or kidneys.
2. Constant thirst.	2. No thirst.
3. Hæmatemesis common.	3. Hæmatemesis rare.
4. Presence of increased amount of HCl.	4. Diminution in proportionate amount of HCl.
5. Vomiting is combined with severe paroxysms of pain.	5. Not so.
6. Vomitus contains large quantities of blood.	6. Vomitus contains little blood.
7. Emaciation rapid.	7. No rapid emaciation.

Gastric Ulcer.	*Cancer of Stomach.*
1. Pain intermittent worse after eating.	1. Pain constant.
2. Occurs usually in adults.	2. Occurs usually after 40 years of age.
3. Vomiting of large amounts of bright red blood.	3. Hæmatemesis small in amount and "coffee grounds" in appearance.
4. Pain is relieved by vomiting.	4. Pain is not relieved by vomiting.
5. Anæmia.	5. Extreme emaciation and cachectic appearance.
6. No tumor in the region of the stomach.	6. Presence of palpable tumor in the epigastric region.

Ulcer of Stomach.	*Gastralgia.*
1. General health of patient is impaired.	1. General health not so much affected. Less chlorosis and menstrual derangement.
2. Paroxysms of pain usually come on a definite period after eating.	2. Paroxysms more frequent when stomach is empty than soon after meals.
3. Shorter intervals between attacks.	3. Longer intervals between attacks.
4. Eating rarely relieves pain.	4. Eating usually brings relief.
5. Tenderness on pressure between attacks of pain.	5. Not so.

6. History of certain occupations. Anæmia, chlorosis, amenorrhœa, tuberculosis and diseases of the heart are common.

6. History of neurasthenia, neuralgia and hysteria common.

Pathology.—The typical gastric ulcer is circular in outline and varies in diameter from a few millimeters to three or five centimeters. The majority are not larger than a dime. They have sloping clean cut sides, furnishing a crater or truncated cone-shape with the broad end superficially placed corresponding to that of an infarcted area due to embolism or thrombosis. The edges may be irregular and rough, but are often, especially in older ulcers, quite smooth and rounded. The floor of the ulcer is generally clean and at the autopsy is seen below the mucous membrane. This is due to its tendency to extend in depth. The muscular and serous coats very frequently form the base of the ulcer and, sometimes, the ulcerative process extends through the walls of the stomach. The lesser curvature and posterior wall are the most frequent seats. Occasionally they are found at the fundus or at the cardiac end. In the healing of ulcers, scars are formed in the walls of the stomach. They heal by cicatrization. When the cicatrix is large, it causes contraction and deformity producing a stenosis of the pylorus by distorting the organ even to hour glass shape.

The organ with which the stomach becomes agglutinated may be penetrated by the ulcerative process resulting in suppurative inflammation or there may be a fistulous connection between the stomach and other adjacent structures. Perforation is more liable to take place when the ulcer is in the anterior wall. Cases have been reported where the pericardium, left ventricle, spleen, pancreas, have been invaded.

Constant oozing of blood may be due to the erosion of the surface and larger hæmorrhages may result from ulceration of one of the larger arterial branches of the stomach.

Etiology.—The great majority of the cases of gastric ulcer occur in young women between the ages of twenty and thirty. In men it occurs between thirty and forty. It is especially more common in those women suffering with chlorosis or anæmia and general malnutrition. It is often secondary to amenorrhœa. Much dispute has been occasioned as to the pathogenesis of these ulcers and it has been definitely settled as due to the digestion of a part of the mucous membrane to various depths resulting in the formation of an ulcer. Another universally accepted view is that it is due to a reduction in the alkalinity of the part affected. Other factors which lessen the supply of alkaline arterial blood and thus permit the solvent action of the hydrochloric acid are thrombosis and embolism of the nutrient artery with infarction. Some authorities hold that this disease is a neurosis. Spasm of the blood-vessels in localized areas and thickening of the walls of the vessels leading to anæmia have been advanced as causes. Feeble nutrition and traumatism are important factors. Traumatic injuries may be produced by the various occupations in which the pressure is exerted upon the costal cartilages and which, in turn, are pressed against the stomach, such as in shoemakers, tailors,

servants, etc. Tight lacing and overdistention of the stomach are considered by some as important causes since they occasion circulatory disturbances.

Treatment.—Diet plays an important rôle in the successful treatment of gastric ulcer. Rest in bed with very little food by mouth, and lavage of the organ will do more to relieve her symptoms and hasten granulation of the ulcer than all other medication. We will keep the patient alive by nutritive enemata containing:—

℞ One egg,
Liquid peptonoid ..... f℥ij.
Peptonized milk ..... f℥vj.
Misce. Signa. Per rectum every four hours.

To keep the rectum clean and healthy so that the best results of the enemata may be obtained, a cleansing enema of a normal saline solution should be given at least once daily. The patient will receive nothing by mouth for ten days, except a little water to quench the thirst. Lavage with a gallon of normal saline-solution, twice daily, is followed by silver nitrate, grains one-fourth in a dram of mucilage of acaciæ. If at the end of ten days the patient has sufficiently improved, peptonized milk broths, lemon and orange albumin are given by mouth, and a nutritive enema twice daily. Of course, as the patient progresses more liquid foods are allowed and the nutritive enemata discontinued. Lavage once daily is continued until all symptoms of the ulcer have disappeared. Our attention should then be given to the constitutional condition of the patient. She is anæmic and emaciated; hence, good food and hæmatinics are indicated. A formula which I often use in these particular cases contains:—

℞ Ferri pyrophosphatis solubilis ..... gr. iij.
Mangani dioxidi præcipitati,
Quininæ bisulphatis, of each ..... gr. j.
Extracti nucis vomicæ ..... gr. ⅙.
Extracti gentianæ ..... gr. ij.
Misce. Fiat capsula No. i.
Signa. One such capsule four times daily.

Original Articles

HEADACHES AND THEIR TREATMENT.*

By GUTHRIE RANKIN, M.D., F.R.C.P. (Lond. and Edin.),
Physician to the Dreadnought and Royal Waterloo Hospitals.

There is probably no symptom of ill-health more frequently encountered than headache. It forms part of the picture in the early stages of most of the acute organic disorders; is a frequent accompaniment of chronic disease; and

* A lecture delivered at the London School of Clinical Medicine.

is a characteristic phenomenon in many functional disturbances. Its manifestations are varied and, in some of its more distinctive types, it constitutes the predominant feature of an illness and guides us unerringly to the correct recognition of its cause. It is uncommon in infancy and old age, and is much more frequently encountered in women than in men. It may be induced by a variety of local conditions, such as disorders of the teeth; disease in the throat, nose, ear or eye; refractive errors; rheumatic or gouty affections of the scalp muscles or fasciæ; or it may ensue upon an inflammatory or traumatic lesion of the cranium. It is not infrequently incited by atmospheric conditions, such as a cold north-east wind, the electrical disturbance of the air accompanying a thunderstorm, or atmospheric impurities in an overcrowded room. It may result from sudden and extreme exertion, or from protracted mental or physical effort. But most frequently of all it depends upon errors of metabolism consequent upon irregular habits of diet and exercise, or upon the occurrence of constitutional or organic lesions. It must be apparent that a pain which owns such a multiplicity of causes demands considerable care in its investigation, and that nothing can be more illogical than the blind faith with which the public swallows this, that, or the other headache-cure boldly advertised by the unscrupulous quack as infallible. It is impracticable, in the time at my disposal, to present any complete classification of all the varieties of headache. All I shall attempt is to select a few of the leading types and to ask you to consider with me how these can be differentiated from one another, and along what lines their treatment may be conducted with the best chance of being successful.

And in the first place let us glance at the most frequent of all forms of headache—that which results from a toxæmic condition of the blood. A toxæmia may be induced either by poisons introduced from without or by poisons created within the body. Certain drugs, such as iron, quinine, salicin or opium; unwholesome food containing ptomaines; alcohol when taken in more than physiological amount; and tobacco excessively indulged in may be mentioned as familiar examples of substances which may, when taken into the body, cause headache. The cure of this form of headache is obvious and consists in the withdrawal of the poisonous substance which is responsible for its production. When it happens in connection with the legitimate administration of drugs for curative purposes, the headache may often be obviated by their admixture with suitable correctives. Quinine can often be tolerated when combined with hydrobromic acid; opium when associated with belladonna or one of the aperient alkalies; and the salicylates when presented with bicarbonate of potash or aromatic spirits of ammonia. In the case of iron, it is often found that one of the milder preparations agrees perfectly when the more potent varieties of the drug are upsetting. Also it is noteworthy that the influence of the milder drug may be reinforced by the choice of a combined salt which provides with the iron another drug selected to meet the diathetic indications of the case. Such useful remedies as the citrate of manganese and iron, the valerianate of iron, the salicylate of iron, the syrup of quinine, strychnine and iron, the citrate of quinine and iron, and the peptonate of iron, may be

enumerated as useful examples of this class of drug. In regard to alcohol, the subject of treatment is too large to enter upon here, but it may be mentioned, in passing, that in order to assist the patient to accomplish the total abstinence which, in cases of an established alcoholic habit, is essential, he may be helped by such a prescription as the following: Extract of hydrastis, two grains; extract of belladonna, one-twelfth of a grain; capsicin, one-eighth of a grain; and strychnine, one-thirtieth of a grain: given in the form of a pill three times a day after meals. Of the poisons created within the body, apart from visceral disease, those which ensue upon a faulty digestion, excessive alimentation, insufficient exercise with consequent ineffective elimination of waste products are mainly responsible for headache and other evil consequences. This variety of headache is due primarily to interference with hepatic activity and to fermentative or putrefactive processes in the gastro-intestinal tract. For its relief the food must be of the simplest and most bland description and should be carefully adapted to the patient's digestive capacity. In cases where the stomach is dilated and its walls are flabby, a few morning washouts through a syphon-tube followed by the application of the faradic current and twenty minutes' massage to the abdominal walls will be found useful. In patients who have to blame an overnight revel or an unwise evening meal for their headache, the speediest means of relief is afforded by an emetic. In order to stimulate hepatic activity, podophyllin, gray powder, blue-pill, calomel, iridin, or leptandrin, combined with either colocynth or rhubarb should be resorted to. For the prevention of intestinal fermentation, antiseptics are valuable and may be given in an acid or alkaline mixture according to the indications of the case.

(a) Dilute hydrochloric acid, twenty minims; pure carbolic acid, two grains; strychnine solution, five minims; tincture of ginger, twenty minims; decoction of cinchona bark to one ounce: to be taken three times a day one hour after meals.

(b) Sulphocarbolate of soda, ten grains; bicarbonate of soda, fifteen grains; tincture of nux vomica, ten minims; spirits of chloroform, twenty minims; compound infusion of gentian to one ounce: to be taken three times a day one hour before meals.

In cases which come under this category, help is also afforded by the inclusion in the daily dietary of one pint of soured milk. This is conveniently prepared at home by the use of the lactic-acid tabloids put up by Allen and Hanbury under the name of "Sauerin." The proper degree of "souring" is produced in the milk by its treatment in the Sauerin apparatus supplied by the same firm which is sent out with complete directions.

It is important to remember that in all these conditions personal susceptibility plays a prominent part. One person, though dyspeptic all his life, may never have known what headache meant; another, on the slightest upset of his digestion, experiences such commanding discomfort or pain in his head that he is thrown quite hors-de-combat so far as work or effort of any kind is concerned. To one person alcohol or tobacco seems innocuous even in liberal allowance; to another the most moderate indulgence in either is disastrous.

To the average person, iron or opium, in proper quantity, produces no discomfort, but exceptions are not uncommon of others who are hopelessly intolerant of either or of both. Headache accompanies all acute fevers and inflammatory disorders. It is as a rule confined to the earlier stages of the illness and may be allayed by ice or cold-water cloths applied to the scalp, or by a mustard plaster to the nape of the neck, but otherwise its treatment becomes merged in that of the general disorder. In those organic diseases which occasion contamination of the blood, headache, more or less severe, is likely to be in evidence and is often so much the prominent symptom that the patient begs, above all else, to be speedily relieved of it. The pain of the toxæmic headache, however derived, is of a dull, heavy character, is generally referred to the forehead and temples, is often associated with flushing of the face and injection of the conjunctivæ, and is accompanied by a sense of mental and physical prostration. Its incidence, duration and degree vary according to the exciting cause and it sometimes presents features which, when read into the text of the general condition, help to reveal the disease behind it; as, for instance, in influenza, we find the pain is specially intense in the globes of the eyes, or in enteric fever where it is often the earliest and most continuously persistent symptom, slight in the morning but increasing in intensity towards evening. In these instances, and many similar might be quoted, the meaning of the headache is subsequently explained by the evolution of the disorder producing it, but regarded *per se,* its own characteristics often serve, from the beginning, to guide the diagnosis. The susceptibility of gouty and rheumatic people to headache peculiar to their diathesis is not sufficiently recognized. In a patient, proved to be gouty from the experience of one or more attacks of classical great-toe inflammation, we are not surprised to find a history of frequent moderate headaches which yield to a dose of calomel and a temporary application of the muzzle, and we regard such occurrences as the inevitable consequence of a sluggish liver or of some passing dietetic indiscretion. But there is another form of headache to which the gouty are liable which is of more serious consequence and which is not infrequently misinterpreted. The pain is of sudden onset and frequently sets in after a time of unusual stress; it is bitemporal in situation, throbbing in character, accentuated by movement, accompanied by vertigo on any sudden change of position, and frequently increased during the night. It is mostly met with in men of a full habit of body and is accompanied by a flushed face; a scanty secretion of high-colored urine which may or may not throw down a copious deposit of lithates on standing; nausea and loss of appetite; irregularity of bowels with abnormally pale stools; mental depression and confusion of thought; and by a small, rapid, high-tension pulse often associated with palpitation and shortness of breath on exertion. This variety of headache is suggestive of apoplexy and always demands prompt and active attention. The rheumatic headache is of quite a different type. It affects the epicranial aponeurosis and the tendinous terminations of muscles. The pain is superficial and causes tenderness of the scalp; it is often specially pronounced over certain circumscribed areas of the vertex or at the seat of one or more tendinous insertions, where small fibrous swellings are not uncommonly to be felt on

palpation. It is worse in the evenings, but is subject to constant variations in intensity and can be readily excited by movements of rotation of the head. In the headache which belongs to renal disease, the pain is dull, severe, and constant; it occupies the entire forehead, and is accompanied by a sensation of fulness within the head, surging in the ears, dimness of sight, and a tendency to slight delirium and subsequent drowsiness. Confirmatory evidence of its etiology is furnished by vomiting and diarrhœa, by the presence in the urine of albumin and casts; sometimes by the existence of retinal changes; and by oppression in the chest and asthma. The headache which occurs as a prominent symptom of influenza is rapidly relieved by such a prescription as this: Antipyrin, ten grains; aspirin, ten grains; citrate of caffein, three grains; dispensed in a cachet and given every three or four hours until the pain is relieved. In enteric fever, headache does not yield in the same satisfactory way to analgesic remedies; it is more amenable to chloral hydrate and potassium bromide than to most other drugs. Ten grains of chloral with twenty grains of one of the bromide salts seldom fail to give temporary relief. Bromidia, which is a mixture of chloral, bromide and cannabis indica, is a useful preparation in many enteric cases; its administration at bedtime often ensures a good night's rest. The headache which so often troubles the person of gouty proclivities ought to be treated on the lines indicated for the management of dyspeptic conditions, but in that form of sudden and severe pain in the head which has been referred to as a specially important incident in patients who have previously suffered from acute gout, more active measures are indicated and in addition to colchicum, citrate of potash and the usual anti-gouty remedies, four or six leeches should be applied to the temples, and the bowels ought to be copiously evacuated by a five-grain dose of calomel given at bedtime, followed in the early morning by two teaspoonfuls of Carlsbad salt, repeated every hour until a satisfactory result is obtained. The headache of rheumatism is always relieved by the local application of warmth, and often yields speedily either to salophen in twenty-grain doses every four hours, or to a combination of chloride of ammonium, twenty grains; salicin, ten grains; and phenacetin, ten grains: given three or four times a day. In renal headache simple diluents should be given freely and the diet restricted to milk. All the eliminating organs must be stimulated. The skin is most speedily acted upon by pilocarpine given hypodermically in a daily dose of one-sixth to one-quarter of a grain, the patient being previously placed in a hot pack where he should remain for an hour. The free action of the kidneys will be promoted by squills, digitalis, spirits of juniper, acetate of potash, or cream of tartar; these failing, success often follows the administration of diuretin in ten-grain doses every four hours. The bowels should be excited to purgative action by compound jalap powder in forty- to sixty-grain doses, or elaterium in a dose of one-quarter of a grain, or croton oil in such a pill as this: Croton oil, one minim; oil of carraway, one minim; extract of colocynth, three grains. When high arterial tension and asthma are obtrusive symptoms, as they often are in advanced cases of interstitial nephritis, their early relief is an urgent necessity. This is sometimes satisfactorily accomplished by the following pre-

scription: Iodide of potassium, ten grains; the one-per-cent. solution of nitroglycerine, two minims; aromatic spirit of ammonia, half a drachm, and chloroform water to half an ounce—to be given every three or four hours. When the iodides disagree, a good substitute will be found in Gardner's syrup of hydriodic acid, every drachm of which contains iodine equivalent to ten grains of either of the salts.

Another form of headache which demands the constant attention of most of us is migraine—or as otherwise known, on account of its common unilateral distribution, hæmicrania. It occurs more often in women than men, is more common on the left than on the right side of the head, and is often hereditary. It is almost as frequent in childhood as in adult life, and generally diminishes or disappears in old age. It is always associated with vasomotor phenomena, and is frequently accompanied by high arterial tension. It manifests itself in paroxysmal attacks and is, in many respects, analogous to epilepsy. The two disorders not uncommonly co-exist in different members of the same family. The migrainous attack usually sets in during the early hours of the morning and is preceded by prodromal warnings such as vertigo, yawning, dancing specks before the eyes, zigzag patterns, or tinnitus aurium. These sensations correspond closely to the aura that precedes an epileptic seizure. The leading feature of the attack is pain which is at first localized to a circumscribed spot over one eye or in the temple, and from there spreads circumferentially. It often remains limited to one side of the head, but in severe attacks, it may involve both temples, though continuing most severe on the side of its origin. The pain is continuous and steadily increases in intensity until, after a period varying from one to six or more hours, it reaches its acmé in an attack of violent retching and vomiting, by which the severity of the suffering is considerably diminished. The pain is accompanied by extreme intolerance of noise or light, and by a supreme desire to be left alone and undisturbed. Finally the attack terminates in a troubled sleep from which the sufferer awakes free of headache, but languid and irritable. Complete restoration to comfort is not achieved until the effect of the nerve-storm upon the digestive organs is overcome by rest together with suitable medicinal and dietetic measures.

Remedies for the relief of migraine are almost without number, but the most that can be expected of any of them is a diminution of the severity and a curtailment of the duration of the pain once the attack has become fairly established. Preventive treatment can do no more than endeavor to improve the patient's general health by correcting unhygienic conditions or pernicious habits so that an increased resisting power is acquired by the establishment of greater nerve stability and increased physiological activity in the secretory and excretory functions of the various organs. On the first threatenings of an attack, the patient should lie down in a darkened room, and if the cause be immediately preceding fatigue, ten grains of antipyrin swallowed with one tablespoonful of brandy and water will often, when combined with one or two hours' rest, cut short the pain. In more acute cases such simple measures are insufficient. It is then necessary for the patient to go to bed and to submit to

wholesome starvation for twenty-four hours. Primary relief is afforded by the application of cold to the head and of a mustard-plaster the whole length of the spine. If there is reason to suppose that the stomach contains a quantity of undigested and fermentating food, it should be emptied by an emetic: Thirty grains of sulphate of zinc by the mouth, or one-eighth of a grain of apomorphia hypodermically. For the immediate relief of pain there is a long list of analgesic drugs to choose from. I find, in my own experience, one or other of the following combinations most effective:—

(a) Antifebrin, two grains; citrate of caffein, three grains; lupulin, one grain.

(b) Antipyrin, ten grains; aspirin, ten grains; codein, one-quarter of a grain.

(c) Pyramidon, seven grains; dried bromide of strontium, ten grains; valerianate of zinc, two grains.

To be put up in cachet form and one to be taken every two hours for three doses or until the pain subsides. Afterwards the doses to be taken at longer intervals.

In cases of extreme severity, when all the remedies of the foregoing class fail, it may be exceptionally necessary to resort to a hypodermic dose of one-quarter of a grain of cocaine or morphia, the latter being most efficacious if given in combination with one-hundredth of a grain of atropin. When the migrainous attack is associated with a pulse of high tension, whatever remedy is chosen should be accompanied by nitro-glycerine in one or two minim doses, each tabloid being allowed to melt slowly in the mouth. Between the attacks of pain something may be done in the way of prevention by proper regulation of the daily life as regards diet, exercise, clothing, occupation, etc.; by keeping the liver active with occasional small doses of calomel and rhubarb, and by administering arsenic and cannabis indica in combination with an intestinal antiseptic, as in this prescription: Betanaphthol, five grains; arsenate of soda, one-thirtieth of a grain; extract of cannabis indica, one-third of a grain; extract of gentian, two grains: to be put into a capsule and taken three times a day after meals.

Closely allied to migraine is yet another variety of headache associated with disturbance of one or other branch of the trigeminal or fifth cranial nerve. The most frequent cause of this neuralgic headache is exposure to cold and damp, but it may also be produced by the irritation of a decayed tooth, by disease in the antrum, or by the pressure of an inflammatory exudation or morbid growth near one of the bony canals traversed by a branch of the nerve. The pain is deep-seated and of a stabbing and burning character. It may involve any of the three divisions of the nerve and is always confined to one side of the face. It varies in intensity, but in its more severe manifestations it is accompanied by spasmodic unilateral contraction of the facial muscles and causes the patient to cry out with the agony he suffers; it is then known as *tic douloureux*. Tender spots along the course of the affected nerve are characteristic and are most commonly found at the supra-orbital notch, over the infra-orbital foramen, in front of the ear, or at the seat of exit of the inferior dental

nerve. Another, but less common, form of neuralgic headache is confined to the occipital region and is met with when the posterior branches of the first four pairs of spinal nerves are the seat of disturbance. The first indication for treatment is the removal of the cause when this can be ascertained and is possible to deal with. The ears, mouth, throat and antra must be investigated, and particularly the teeth should be minutely examined, special care being taken to ascertain that a buried stump or a small root-abscess is not primarily responsible for the pain. The local application of sedatives may succeed in relieving the intensity of the suffering. The following applications are useful for this purpose:—

(a) Menthol, two drachms; pure chloroform, two drachms; olive oil, one and a half ounces.

(b) Sulphate of atropin, five grains dissolved in one ounce of distilled water.

(c) Liniment of belladonna, liniment of chloroform, liniment of aconite and soap liniment in equal parts.

When the pain becomes very acute it will be found necessary to obtain initial relief from one or more subcutaneous injections of morphia, and, to be effective, the dose must be from one-quarter to half a grain. Hyoscine is sometimes more successful than morphia. It may be given hypodermically in doses of one two-hundredth of a grain. In this variety of headache, gelsemium, which seems to exercise a specific influence upon the peripheral branches of the fifth nerve, should always be administered. It is well to search for some dyscrasial tendency—gouty, rheumatic, malarial, syphilitic, or anæmic—as a guide to the selection of medicaments which may enhance the curative influence of gelsemium, and from the following formulæ that should be chosen which seems best to meet the indications of the case under observation:—

(a) Citrate of potash, thirty grains; compound tincture of colchicum, twenty minims; tincture of gelsemium, fifteen minims; decoction of taraxacum, to one ounce.

(b) Salicylate of soda, fifteen grains; antipyrin, ten grains; tincture of gelsemium, fifteen minims; camphor water, to one ounce.

(c) Sulphate of quinine, five grains; hydrobromic acid, half a drachm; tincture of gelsemium, fifteen minims; infusion of orange, to one ounce.

(d) Iodide of potassium, ten grains; Fowler's solution, three minims; tincture of gelsemium, fifteen minims; decoction of sarsaparilla, to one ounce.

(e) Ammoniated citrate of iron, ten grains; acetate of ammonia solution, one drachm; tincture of gelsemium, fifteen minims; tincture of nux vomica, ten minims; peppermint water, to one ounce.

Any of these mixtures may be taken every four or six hours.

In some intractable cases croton-chloral succeeds better than any other drug. It may be given in the following combination: Croton-chloral-hydrate, four grains; extract of gelsemium, one-quarter of a grain; heröin, one-twelfth of a grain: in a pill, every three or four hours until relief is obtained.

Recently cases have, from time to time, been recorded of striking temporary relief being obtained by injecting the main trunks of the nerve at their

points of emergence from the skull with an eighty-per-cent. solution of alcohol, according to Schlösser's method. The administrative technic is difficult, requires the assistance of an anæsthetic, and is attended with a considerable degree of subsequent discomfort. The method is still in the experimental stage but is worthy of trial before being driven to the extreme alternative of resection of the nerve or extirpation of the Gasserian ganglion.

Time will only permit me to refer casually to a few other forms of headache. That which is caused by organic changes affecting either the meninges or the brain, and which accompanies such conditions as meningitis, intracranial tumor, abscess, or hæmorrhage, is deep-seated and continuous, is made worse by stooping or exertion, and is markedly increased at night. Its distribution is often frontal, but it is occipital when the cerebellum is the seat of lesion, and may occupy any part of the scalp in an area overlying a cortical lesion. Among the more important accompanying symptoms are vomiting, optic neuritis, vertigo, irregularity of pulse, ocular or other paralyses, convulsive movements, intellectual aberration, and coma. The headache of syphilis is peculiarly given to nocturnal exacerbation; if it moderates during the day, it will increase in severity towards a certain hour of the night and prevent sleep. In meningitis, the pain is diffused over the skull and is accompanied by pyrexia, photophobia, retraction of the head, and delirium. It is usually accompanied by Kernig's sign and by a recurrent, sharp, piercing cry. In apoplexy, there is almost always a prodromal headache, limited to one parietal or temporal region and often accompanied by confusion of thought and vertigo. The headache which results from an intracranial growth should be treated initially by iodide of potassium. If the tumor is specific, the iodide may prove completely curative, but it is also capable of relieving, to a certain extent, the pain and local congestion induced by non-specific swellings. It is of importance to remember in connection with the administration of the drug in such cases that, to be effective, the dosage must be large—from thirty to forty or even sixty grains three or four times a day. Many of you saw a case with me in the wards of this hospital a few weeks ago in which forty grains of iodide of potassium given every six hours relieved in the most striking manner within a week the agonizing pain of a headache which had almost driven the sufferer crazy, and which for a considerable time previously had made sleep at night an impossibility. If treatment by iodide fails and if the clinical signs enable the situation of the tumor to be localized, the question of possible relief from surgical interference must always be considered. When the headache is due to meningitis, thrombosis, or hæmorrhage, treatment of the pain becomes merged in that of the general condition. The headache of eye-strain dependent upon astigmatism, presbyopia, or glaucoma requires ophthalmoscopic and retinoscopic examination for its diagnosis and its cure falls within the province of the ophthalmic surgeon.

The headache of neurasthenia is probably due to some form of auto-intoxication, and demands for its relief the treatment described as suitable for toxæmic headaches, plus the system of rest, massage, isolation, and super-alimentation associated with the Weir Mitchell plan of management. It may

be worth mentioning that when these neurasthenic cases are associated as they so often are, with disturbance of the vasomotor system, distinct improvement often ensues upon the exhibition of ichthyol which seems to have a specific influence upon the vasomotor centres as well as an antiseptic effect upon the gastro-intestinal tract. The following prescription has proved of signal service to me in a large number of such cases: Ichthyol, four grains; valerianate of zinc, three grains; extract of cannabis indica, one-third of a grain; arsenious acid, one-fortieth of a grain; iridin, one grain: put up in a capsule and given after food three times a day.

Another common source of headache is met with in the two opposite vascular conditions of plethora or anæmia. The plethoric headache is that which characterizes gouty conditions, or threatened apoplexy, already referred to, but it is also met with at the onset of pyrexial disorders, in certain forms of valvular heart disease, after an epileptic seizure, as a consequence of alcoholic excess, or sometimes in sudden menstrual suppression. The pain is best relieved by cold to the head; temporary abstinence from food; diluents; lactate of calcium, or an alkaline mixture containing bromide of potassium; and temporary rest in bed. In cases where the cerebral vessels are very loaded, the most speedy relief is obtained by venesection or the use of leeches, and by sinapisms applied over the abdominal wall.

The anæmic headache is most frequently vertical, but it often assumes the neuralgic type. It is accompanied by pallor, throbbing in the head, dizziness, palpitation, feelings of faintness, and mental depression. All remedies which increase vascular tension, accelerate the circulation through the brain, and improve the quality of the blood are serviceable, of these the most valuable are arsenic, iron, and citric acid which may be ordered in many varieties of combination to meet the requirements of individual patients. Causes which contribute to the anæmia, such as constipation, leucorrhœa or other exhausting discharge, etc., must be dealt with as part of the cure. Anæmic headaches are relieved by alcohol, and its administration in moderate quantity, in the form of a light red wine with luncheon and dinner, is often advantageous.

The subject of headache is too large to be overtaken in the course of a short lecture, and I apologize for the fragmentary and incomplete story I have attempted to put before you in sketchy outline. Many of the details which I have omitted will be supplied out of the fulness of your own experience. If I have succeeded in giving you material for consideration and criticism, I shall have accomplished my desire and maybe shall not have occupied your time altogether fruitlessly.

MEDICO-LEGAL.

By E. S. McKEE, M.D.,
CINCINNATI.

DEVIATION OF THE COMPLEMENT.

This method originated by Bordet and Gengou, and adopted by Neisser and Sachs, is of much service in scientific laboratory work where pure albu-

minous solutions are under investigation. These eminent German pathologists of Berlin have recently discussed this subject in a pamphlet of recent publication. Uhlenhuth from his high position as an authority on forensic medicine, naturally possesses an opinion of much value. He attaches less value to it in forensic practice where we have to deal with traces of blood, subject to all sorts of contaminations. Fallacies arising from many of these complications may be eliminated by special care and the employment of control experiments, but nevertheless difficulties arise from the fact that the "deviation" is so sensitive that it gives positive results with sweat, mucus, nasal secretions, saliva, etc., and thus may be misleading. He maintains that these difficulties are not employed in the precipitine method employed by him. He thinks it wrong to regard a positive result by the Neisser-Sachs method as overruling a negative outcome of the precipitine test.

SOCIAL MEDICINE CHAIR AT VIENNA.

Gruen at a recent meeting of the Vienna Ærtzekammer proposed that a petition should be presented to the government, asking the establishment of special chairs in social medicine in the Vienna University. The suggestion was received with great applause and was made the special order for a later meeting. Gruen suggested that the student should be instructed: (1) In the relation between the doctor and the general public, the authorities and the legislature. (2) The importance of medical organization and the duties of the physician towards it. The main subjects should be: Physician and patient; the rights and duties of the physician in regard to his patients and the public; the duties of the physician in regard to his brethren in private practice; instruction in medical ethics; rights and duties of the doctor in relation to contract practice and sick clubs, insurance companies and accidents; the relation between old age and invalid pensions and private practice. Special care should be devoted to medical testimonials and examinations, the duties of the medical practitioner to the state in infectious diseases and industrial diseases. The important subject of social hygiene should also form a part of this study. This latter subject would comprise the history of social hygiene, social statistics and special hygiene—of schools, buildings, of food and of epidemics.

THE INCONVENIENCE OF DEATH PECUNIARILY CONSIDERED.

A Mr. Burke was sent to Cork to consult a medical man and while in his office showed such marked signs of uræmia, that he was sent to Miss O'Tool's private hospital, where for three days his condition was extremely precarious and he died on the fourth day. The executors objected to pay the medical expenses of the case unless they were proceeded against. The county court gave judgment for the three plaintiffs, medical attendant, chemist and proprietress of the private hospital. An interesting point passed on, was whether a private hospital is entitled to charge for the inconvenience resulting from the death of a patient residing therein. Apparently his honor thought so from his allowing the nurse's claim. Doubtless many private hospitals would not welcome a death at this price.

A DEATH UNDER STOVAINE.

Patient aged 72, a house painter, suffering from enlarged prostate and its complications had also a degenerate heart and diseased lungs. The use of both chloroform and ether were contraindicated and as general anæsthetics and stovaine were chosen as the safest of known local anæsthetics, we can not presume any agent which will absolutely abolish pain to be absolutely safe. Experience shows that patients who bear general anæsthetics badly, the aged and alcoholic, usually bear stovaine well and the absence of shock, even after serious operation has been remarkable. In view of the infrequency of ill effects after stovaine, the present regrettable result may fairly be taken as an exception which proves the rule. It is the rule in operating under local anæsthesia that the field of operation must be screened from the patient and customary to distract the patient's mind from the operation by engaging him in conversation. A drawback to the method, especially in the presence of heart weakness is that the head must be kept raised in order to protect the medulla and its nerves from the influence of the drug. Fright as a factor in deaths from operations recalls the fact that in the first case selected for the administration of chloroform in the Royal Infirmary in Edinburgh, the patient died on the table immediately after the first incision. It is fortunate for the future of chloroform that the unavoidable absence of Simpson prevented the administration of the anæsthetic.

A "STOUT" FEE.

The following joke is from the staid old *British Medical Journal,* and as you may readily see can be understood even by an Englishman. "A medical practitioner who was attending a licensed victualer, and had brought a physician to see him, said in an undertone to the wife as they were going upstairs, that the fee would be "three guineas." After consultation as the money did not seem forthcoming, he again mentioned the fee, which was promptly paid. The doctors then prepared to depart but the lady of the house interposed and asked what was to be done with the three glasses of stout, which they now saw with surprise on the table, and which she averred that her doctor had ordered as they were going upstairs. She thought "three Guinness" was the fee—perhaps not an unnatural mistake for a publican's wife. It was a "stout," if not exactly a fat, fee.

ACTION FOR INJURY WHILE UNDER AN ANÆSTHESIA.

A medical man, who shall here remain nameless, brought action against the governors of St. Bartholomew's Hospital, London. He was admitted that he might be examined under an anæsthetic. It was alleged that he was placed on the operating table in such a position that his arms hung over the table and his left arm came in contact with a hot-water tin projecting from beneath the table, that the inner part of the right arm was bruised by the operator or some person pressing against it during the operation and that the results of these injuries was a traumatic neuritis and paralysis of both arms, so that he had ever since been unable to exercise his profession. Defendants denied the alleged negligence and pleaded that if they owed any duty to the plaintiff it

was to exercise reasonable care in the selction of a hospital staff, in which duty they had not failed. It was submitted on the part of the defendants that no action could lie against them being governors of a charitable institution. In giving judgment for the defendants the court said that he considered that it would be a fatal policy to allow such a case to go to the jury under these circumstances, because if he did so, everybody who happened to have a grievance against the hospitals would be bringing an action "on spec." and raising all sorts of questions, which would be disastrous to those who controlled these institutions. Certainly a wise judge and a just decision. It is regrettable that such an action was brought by a medical man.

PHYSICIAN RESPONSIBLE FOR ORDINARY, NOT EXTRAORDINARY SKILL.

Champion vs. Keith, Supreme Court of Oklahoma. The physician called in attendance on an injured person diagnosed dislocation of the hip. Apprehensive, however, that there might be a fracture he put the injured part up in a plaster-of-Paris bandage, which he said was the proper treatment for either condition. The case turned out to be one of fracture of the surgical neck of the femur, the treatment was unsuccessful and the patient brought suit for damages, claiming that the physician had not used the ordinary care in making a diagnosis. The court held that the physician had not acted in such a manner as to render himself liable for damages. A physician or surgeon is never considered as warranting a cure unless under special contract for that purpose. Where no express agreement is made, his implied contract is that he possesses ordinary skill, learning and experience, possessed by others of his profession; that he will use the ordinary skill and diligence in the treatment of the case, and that he will use his best judgment in all cases of doubt as to the proper course of treatment. He is not responsible for damages for want of success, unless it is shown to be the want of ordinary skill and learning or want of care and attention. He is not presumed to engage for extraordinary skill or attention or diligence, nor can he be held responsible for errors of judgment or mere mistakes in matters of doubt or uncertainty.

BLOOD DIFFERENTIATION—HUMAN FROM ANIMAL.

Uhlenhuth, of Griefswald, has discovered a new method of distinguishing human from animal blood. In 1900 Uhlenhuth published a very important communication on his investigations with reference to distinguishing between the albumin of eggs of various birds upon the basis of modern science, which is mainly the result of researches of Bordet, of France, and Ehrlich, of Frankfort. He found that these albumins can be differentiated biologically. His researches resulted in the very important discovery of a new forensic method of distinguishing animal from human blood, so that it is now possible to tell with certainty the origin of the smallest traces of blood either in dry or putrefied form. This method which he published in 1901, was soon confirmed on all sides and has become of fundamental importance for forensic medicine. By his method he can tell the presence of horse meat in sausages and other smoked-meat articles, which is a great step in advance for the examination of food stuffs.

NEGLECT OF HOT WATER BOTTLE.

Earl Gunter, of Day Dawn, Australia, on exhibiting signs of collapse after an operation, a hot water bottle was placed at his feet which was, it is alleged, allowed to become carelessly uncovered and to burn his feet with the result that they have been bad ever since, and he had been unable to work for a long time. The court considered that there had been neglect, inasmuch as the water bottle had not been noticed by the nurses who had care of the man who was in an unconscious state. The court took into consideration that the man had been able to do light work, and that the nurses did not charge him for sixteen weeks of the time he was in the hospital. He considered that plaintiff was entitled to fifty pounds and costs against the nurses.

DAMAGES FROM AND FOR HOT WATER IN UTERINE HÆMORRHAGE.

A case was recently tried in the courts of Aberdeen, Scotland, resulting from the use of hot water in uterine hæmorrhage. Damages were claimed to the extent of one hundred and twenty-five pounds. Two doctors were sued. The court found that the pursuer had failed to prove any fault or negligence on the part of defenders, and he assoilzied them with expenses, finding, however, that no higher charges are to be allowed than would have been incurred if the defenders had lodged joint defences, and been represented by the same law agent. The court remarked that this was a most painful case to decide on account of the mutual aspersions of both parties. On the one hand he did not think that there was any ground for accusing the pursuer of shamming or malingering. On the other hand he could not see how she could have suffered so severely from the application of water not hot enough to scald the doctors' hands, or how the discoloration of the skin, observed by Dr. Stephenson, developed into a raised scar tissue, upon which Dr. Wallace Minn required to operate. In the absence of any proof of fault or negligence on the part of the defenders, he must regard the pursuer's scald as the result of accident. He sympathized with the pursuer, but doubted if she would have raised this action had she known that the defenders, in all probability, saved her life by promptly applying the only available remedy while she was under chloroform. If desperate diseases call for desperate remedies, a doctor might be pardoned for taking the risk of water being rather too hot for the patient's skin, rather than allow the patient to bleed to death. It was common ground between the parties that this particular part could stand much greater heat than the external skin. As regards the subsequent treatment of the case, the defenders seem to have fully done their duty. Dr. Byres having been called to assist was quite entitled to leave the patient to the care of Dr. Mearns. The case goes to show how medical men may be annoyed by actions for damages and though the verdict is in their favor, are loaded with heavy costs, much chagrin and loss of time and reputation.

AMERICAN PROTOLOGIC SOCIETY ABSTRACTS.

Reported by LEWIS H. ADLER, JR., M.D.,
PHILADELPHIA.

President's Address.—"Progress in Proctology," by the President, Geo. B. Evans, A.M., M.D., Dayton, Ohio, who stated that not many years since, the creation of proctology as a specialty was frowned upon; for an indefinite period what was known of and what was done for diseases of the rectum was largely empiric, and not due to special knowledge or scientific study.

A few of us, at least, can remember when it was the rule among general practitioners to make no special effort to determine the pathology of diseases of the rectum; in fact, it was believed unbecoming the dignity of a high-classed, high-toned medical gentleman to so lightly esteem modesty as to ask for the privilege of seeking the naked truth. Without attempting to make a diagnosis, opium and lead wash, with catharsis, was deemed a sufficient treatment for any case. Little was taught in medical colleges of these diseases, for little was known and no special desire to learn much concerning them seemed to exist. But, fortunately, in the natural evolution of this specialty, this ignorance and indifference in the main, has been eliminated, and this field work has assumed that of an accredited and justifiable specialty. No longer do we have to contend with the nonrecognition of serious pathology, because of interposed modesty, ignorance and criminal indifference. A knowledge of the importance of being able to diagnose and treat intelligently diseases of the rectum is now considered essential for every general practitioner, and all this as a result of the creation of proctology by men who have made special effort to develop this field of work. The credit is due to such men as Alder, Allingham, Ball, Cripps, Edwards, Earle, Gant, Martin, Pennington, Kelsey, Mathews, Tuttle and others. To them are we indebted for progressive proctology.

As a matter of course, our pathology of this area is of necessity a modern pathology, and our knowledge of valves, varicosities, neoplasms, ulcerations and suppurations, are not based on hypothetical ideas of a quarter of a century since, but instead on the rather exact revelations of laboratory findings. The import of the presence of staphylococci, gonococci, colon bacilli and tubercle bacilli, is equally of as much importance to the rectal surgeon, as is the microscopical proof of the malignancy or benignity of a bit of tissue. With what greater assurance the proctologist approaches examinations of rectal diseases than did the physician of some years since. With a wide open field, if necessary, the aid of anæsthesia, the proctoscope and the laboratory, there is usually not much difficulty in making a diagnosis—a diagnosis inseparably linked with its dependents—treatment and prognosis. Under the influence of progressive proctologic work, ignorance and indifference to the recognition and treatment of rectal diseases is rapidly disappearing from the average medical man, as

well as from the average layman. As a result of which the sum total of human suffering is immeasurably lessened, and individual existence is not so frequently abridged. The victims of rectal diseases are to be congratulated that this branch of science, or pseudo-science, has sufficiently advanced, that it now occupies the serious attention of the most progressive and intelligent men. The Lister methods of that day have been so changed and improved that they now seem very crude. The value of thorough cleanliness, asepsis, and the antiseptic influence of certain drugs, is of immeasurable value. It is now understood that the recto-anal area can be placed in a surgically clean condition, and that there need be no fear following operative interference. In not a few instances, it obtains that relief is dependent on rectal surgery, when the subjects are unfit for narcosis produced from a general anæsthetic, in cases of cardiac, pulmonic or nephritic disease, making it hazardous to use general anæsthesia. Sometimes it would seem that this danger of the uses of an anæsthetic is too lightly thought of, and consequently, the mortality rate is increased. Local anæsthesia, under cocaine infiltration, for the most part, is satisfactory, and is a great convenience to the operator and a life-saving narcosis in many instances.

The palliative treatment of hæmorrhoids by proctologists is largely a matter of enforcement, viz.: where they are not permitted the opportunity to relieve by radical methods. The operative methods of removing hæmorrhoids are so well understood, simple and effective, that it is foolish to attempt to relieve them by drugs or palliative measures.

The Allingham, or ligature method, when correctly and carefully performed, is generally applicable, but is not so free from pain and so quickly convalesced from as the clamp and cautery method. Many regard the last mentioned method as the one to be preferred. I believe, however, that the enucleation method approaches nearest to the ideal in results, and that the retention of the plug is not so painful as some would have us believe.

Proctoscopic examination is of importance, and is a distinct advance in rectal work. It is of great assistance in determining disease beyond discovery by ordinary methods. It is of distinct service in diagnosis, and of great value in aiding treatment in not a few conditions.

There is more hope for the ultimate cure of tubercular conditions; our better understanding of what environment means to these people will go far toward helping them to recovery, and there is not so much reason for a delayed recognition of the condition, which is of paramount importance.

I believe there is possibly a better understanding of syphilitic conditions, ulcerations, infiltrations and strictures, but the eternal dependence on antisyphilitic treatment to resolve hyperplastic tissue is not so conspicuous, and progressive workers in this field realize that incision and excision are often necessary.

Concerning malignant and benign growths, the surgical rules that apply in other anatomical regions apply here. Early discovery and early removal is the only hope, as we all know, in malignant conditions, and, as an advance, the removal of cancerous growths not within easy reach from below may be dealt with from above, or suprapubicly, and just here it may not be inoppor-

tune to remark that it is to be believed that ere long it will be realized by the average physician that the removal of the rectum *per se,* is not as disastrous a matter as it is sometimes made to appear, especially since it is known that muscular transplantation will preserve more or less perfectly the function of the sphincters. The development of the technic essential to produce sphincteric power, will relieve rectal extirpation of one of its most unpleasant features and render less hesitant many sufferers who should have the benefit of the operation.

Another matter of progressive interest is that colonic or rectal ptosis is amenable to intra-pelvic or intra-abdominal fixation, bringing relief that in some instances cannot be hoped for by any other method of interference.

After all, the most encouraging sign is that the profession recognizes the fact that proctologists have a legitimate right to exist as specialists, and that diseases in the ano-rectal region deserve the same consideration as elsewhere. With the elimination of indifference, æstheticism, modesty, the more universal belief in the necessity of early examination and diagnosis, we can but hope for greater progress and more relief to suffering humanity.

Gentlemen, when I consider the personnel of this association, I am quite confident of the perpetuity of proctology as a distinct entity and am equally sure the progression in this special field of work will be in keeping with that in other specialties.

"A Review of Proctologic Literature from May, 1908 to May, 1909." by Samuel T. Earle, M.D., Baltimore, Md. Among the interesting conditions referred to in the review by the author, were the following: "Congenital Idiopathic Dilatation of the Colon" (Hirschprung's Disease). In Dr. Finley's report of his case he reviewed the literature of the subject to January 1, 1908, and collected some two hundred and six cases, after which he stated that while to Hirschprung belongs the credit of having first called attention to this disease, a number of cases had been found in the literature antedating his classical description. In the article Dr. Finley discussed the various hypotheses as to the etiology of the disease and some ten theories, which have been suggested, from time to time, as the causation of the malady, including that of hypernutrition, which was the author's principal theory. His conclusions as to the etiology of the disease were that no one theory apparently explained every case; that each one explains some.

The symptomatology was described and a complete clinical picture of the disease given with a list of a series of cases discussed in the Johns Hopkins Hospital, eleven in all. Regarding the treatment, the author concludes that no one plan seems applicable to all cases and suggests the method employed in his own case as perhaps the one most applicable to the large proportion of cases, to wit, a preliminary enterostomy; then a colo-colostomy some months subsequently; finally, a complete excision of the affected portion. This artificial anus is left open until after the success of the preceding steps are assured when it should be closed under cocaine anæsthesia.

Dr. Earle in his report alluded to another case of "Idiopathic Dilatation of the Rectum and Colon as far as the Hepatic Flexure," which was reported by H. Morely Fletcher, M.D., and H. Betham Robinson, M.S.[1]

Another case of interest reported was that of a "Sarcoma of the Rectum in a Boy" aged ten years by Cecil Rountree.[2] The pathological examination showed the tumor to be a mixed cell sarcoma. Of five hundred and ninety-six cases analyzed in the Cancer Research Laboratory, of the Middlesex Hospital Reports, there were only six cases under thirty years of age, the age of the youngest, a boy of sixteen years, who had a sarcoma of the rectum. There are likely to be many metastases in sarcoma of the rectum. This malady is rare at any age.

Attention was called to the method of Dr. Dudley Roberts of Brooklyn, N. Y.,[3] for "Gradual Painless Dilatation of the Anal Canal by Dilatable Rubber Bags," which appealed to Dr. Earle forcibly as a very satisfactory means of accomplishing the purpose designed.

Attention was called to the article of Dr. Charles O. Files of Portland, Maine,[4] in which he considers that there are two important factors that should be studied in connection with the "Treatment of Pruritus Ani." These are an analysis of the contents of the rectum and the physical condition and mechanical efficiency of the sphincter ani muscles, external and internal.

The normal fæces contains about 73 per cent. of water. This water holds in solution various volatile, fatty acids, and probably other irritating excrementitious substances. During the retention of the fæces in the rectum a considerable portion of the water disappears. In prolonged constipation, the fæces become hard and dry, some of the fluid passes by osmosis into the cellular tissue about the anus and thence to the skin. The liquid fæces are very often irritating to the mucous membrane of the anus, and causes an intense burning sensation. When this acrid solution is absorbed into the cellular tissue, it causes an irritation of the skin, and we call that irritation, pruritus ani.

The sphincter muscle as long as it remains in a normal condition, prevents the passage of any appreciable amount of fluid through it. When, however, the action of the sphincter is made somewhat irregular by the pressure of a hæmorrhoidal condition, some of the fluid leaks through the anus and causes pruritus by direct contact. The skin about the anus is often found to be moist in persons having hæmorrhoids.

Dr. F. W. Dudley, of Manila, P. I.,[5] reports a "New Bloodless Method of Amputating the Anus and Rectum." A description of the same being given.

Dr. W. Ernest Miles[6] reviews the "Perineal Excision for Carcinoma of the Rectum, and of the Pelvic Colon," and states that, so far as he has been able to gather from the literature on the subject, the technic of previous operations

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1 Clinical Society's Transactions, Vol. xl, p. 80.

2 Proceedings Royal Society of Medicine, February, 1908.

3 The Medical Record, Vol. 72, p. 985.

4 New York Medical Journal, Vol. 87, p. 1154.

5 Journal of American Medical Association, Vol. 51, p. 991.

6 London Lancet, 1908, Vol. 2, p. 1812.

seems to have failed in one important respect, namely, the complete eradication of the zone of upward spread of cancer from the rectum, whereby the chance of recurrence of the disease above the field of operation can be distinguished, if not entirely obviated. In his personal experience of fifty-seven such peritoneal operations, he found that recurrences took place in periods from six months to three years in fifty-four instances.

In order to ascertain the cause of his failures he made a post-mortem examination of such of his patients who died and found that recurrence appeared in situations that were beyond the scope of removal from the peritoneum, namely: (a) the pelvic peritoneum; (b) the pelvic mesocolon; and (c) the lymph-nodes situated over the bifurcation of the left common iliac artery. He considers that this area constitutes the zone of the upward spread of cancer of the rectum, the removal of which is just as imperative, as is the thorough clearance of the axilla in cases of cancer of the breast, if freedom from recurrence is to be obtained.

The appreciation of this important fact, induced him two years ago, to abandon the perineal methods of excision of the rectum and to substitute therefor an abdominal method, comparable to those methods of performing abdominal hysterectomy known as the Wertheim and the Kronig-Wertheim. He then gives the technic of his operation in full, and has formulated what he considers certain essentials, which must be strictly adhered to, if satisfactory results are to be obtained, namely: (1) that an abdominal anus is a necessity; (2) that the whole of the pelvic colon, with the exception of the part from which the colostomy is made, must be removed because its blood-supply is contained in the zone of the upward spread; (3) that the whole of the pelvic mesocolon below the point where it crosses the common iliac artery, together with a strip of peritoneum, at least an inch wide on either side of it, must be cleared away; (4) that the group of lymph-nodes situated over the bifurcation of the common iliac artery are in all instances to be removed; and lastly (5) that the peritoneal portion of the operation should be carried out as widely as possible, so that the lateral and downward zones of spread may be effectively extirpated.

B. G. A. Moyinhan, M.D., Leeds, Eng.,[7] calls special attention to the "Frequent Recurrences After Removal of Carcinoma from the Upper Rectum and Sigmoid," and also for the necessity of inguinal colostomy on account of the sacrifice of a large portion of the bowel in perhaps a large majority of cases.

"Treatment of Pruritis Ani, with a Consideration of Its Pathology and Etiology," by William M. Beach, A.M., M.D., of Pittsburgh, Penna. The following conclusions were drawn by the writer:—

1. That pruritus ani occurs in mild and severe forms; mostly in middle life; the mild type with simple pruritus, the severe type with marked eczema and skin changes.

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7 Surgery, Gynæcology and Obstetrics, 1908, Vol. 6, p. 463.

2. Certain aberrations in general metabolism, or in adjacent structures are simply incidental and should be considered as complications.

3. Intra-rectal growths, as hæmorrhoids, adenomas, etc., or the presence of parasites, are contributory.

4. The distinct pathogenesis of pruritus ani consists of single or multiple burrowing from the anal pockets, emitting a serous or sero-purulent substance, which sinus may be complete or blind and is always accompanied by proctitis, and frequently by cryptitis, and small ulcers at the ano-rectal line.

5. These sinuses when complete are the sequelæ to an abscess history, but the origin of the blind recesses is in doubt, and yet it is not unlikely due to an infection by the colon bacillus.

6. The treatment is surgical for the purpose of obliterating the sinuses, correcting a rigid sphincter when necessary, and curing the proctitis and ulceration.

7. Gastro-intestinal and general metabolic disturbances must be met by rational measures.

"Ball's Operation in the Treatment of Cases of Pruritus Ani with Report of a Case in Which Necrosis of the Flap Occurred," by Louis J. Krouse, M.D., of Cincinnati, Ohio. The case reported was that of a severe intractable case of pruritus ani in a man well advanced in years who underwent the above operation for pruritus with the result of having the anal flap necrose. He went into the pathology as to the cause of the necrosis and came to the conclusion that the trouble lay in the poor supply of blood to the anal flap. He claimed that there is no anastomosis between the blood-vessels from within the anus and those of the skin. The writer called attention to the fact that Sir Charles Ball's operation has recently been modified so as to prevent sloughing of the anal flap.

A new method of operating was proposed by the author which is somewhat different from that of Sir Charles Ball and of that of Dr. Thos. Chas. Martin, and consists: First, in doing away with the elliptical incision which cuts off the greater part of the circulation from the diseased area; and secondly, in making six to eight linear incisions through the skin into the subcutaneous connective tissue. These linear incisions, beginning at a point outside of the point of irritation, follow the course of the radii of a circle whose center is the anal canal. The skin lying between the adjacent radii are then undercut until the whole affected area is undermined. Should the dissection be difficult and more room be needed, every alternate flap could then be loosened at the anal margin and dissected outwards toward the periphery. After all the adhesions are loosened and the bleeding has been stopped, the parts are again replaced and sutured.

The advantages of this operation over the original one of Ball, lie mainly in the better nourishment of the flap. The blood must come from the circumference and must radiate towards the anal canal.

(To be continued.)

Editorials

MUSIC AS A REMEDIAL AGENT.

Scientific progress does not always consist in adding new notions to the already existing ones; it very often consists in destroying an old system and constructing a new one. Of course, no sensible person would break down an old system unless he can substitute something better.

From time immemorial old remedies have been discarded and new ones adopted. The order of advance in the art of healing and preventing disease has been from the crude to the less crude, and heroic measures have given way to the more subtle remedies and the employment of rational treatment.

One of the subtle remedies which should be given more consideration is music. Among the savages the influence of music was far more distinctly noticeable than to any people of a higher civilization. "Music is the direct and immediate effect of the feeling of the moment that it is listened to and this is seen in all individuals."

The idea, that music may be so applied as to actually heal the diseases of the physical organism, is in perfect keeping with the advanced thought of the age. That music hath charms is observed in the fact that a good singer often has a better effect upon an audience than an orator who delivers a good oration. The audience appear much brighter and livelier after hearing a good solo or song than after a discourse no matter how well delivered.

The soothing and calming influence of music is well known to all of us. It has surely occurred to the reader when he was depressed by care and anxiety and when he listened attentively to the sweet strains of a violin or any other form of music, he found rest and oblivion. This comfortable feeling is brought about by creating pleasant visions and thus relieving the mind of worried forebodings. It is also a well-known fact that digestion is favored by introducing good music at banquets and other affairs. This is due to the pleasant entertainment of the mind and thus does away with unpleasant emotions or thoughts which retard digestion.

The recent systematic clinical investigations of music in the field of practical therapeutics has given encouraging results. They are all in the direction of distracting the mind from pain and soothing the mental irritability which is present by leading it into more pleasant channels. Indeed music has been well spoken of as one of the most beautiful and glorious gifts of God to which Satan is a bitter enemy. The recent discoveries in psychology, and the recognition and employment of hypnotism and suggestion, has revealed that the power of thought over the physical organism has materially influenced the treatment of diseases in recent years. Late experiments by physiologists upon human beings and animals show that musical sounds produce a marked effect upon the system. The action of the heart is increased, blood-pressure is elevated or lowered and changes in respiration are also observed. The observations have shown that the music affects not only human beings but also animals.

Spirited, lively airs, exhilarated and increased the nervous stimulation in a very decided manner, while soft music invariably soothed and quieted. The subtle discovery of music as a remedy is not new. Its utilization and therapeutic value was recognized by the savages in the healing art. Among the Indians the medicine man treated all diseases by making all sorts of noises and gestures. Their idea was to drive out the evil spirit which was the cause of the affliction.

The good results obtained from the utilization of music has made it evident that the day is not far distant when music will be a leading factor in the cure of many forms of disease, especially those due to the inharmonious conditions of the mental faculties. It has been stated that idiots appear to best advantage when they are under the influence of music. A new life is impressed into these unfortunate individuals by the harmony of the sweet sounds. In adult life, when the musical taste is more cultivated, the feelings may be swayed by music "from grave to gay, from lively to severe." Soldiers march and fight better when inspired by a band. The effect of harmonious sounds on the mind is recognized as beneficial in that it lifts the entire organism into a higher state. Music appears to do its good by bringing about regularity and rhythm and soothing perturbed consciousness. The music seems to act best in those nervous disturbances in which tremblings and palpitations are the leading symptoms. It tends to regulate the flow of the blood through the brain and the action of the sounds on the mind tends to arouse certain sentiments which seem to have a special power.

Of course, music should be prescribed with due regard to the nature of the mental or physical condition to be treated. To alleviate pain the music should be different from that which should be given to produce sleep. To distract pain the music should be of an attractive order while music to produce sleep should contain no striking or unexpected effects. It should pursue a monotonous course.

The action of music upon the nervous system and its physiological influence in general is easily seen and since it has such acknowledged therapeutic value, it is very strange that it is not more utilized as a remedial agent.

FOUR THOUSAND CONSUMPTIVES STARVE YEARLY.

Many Indigent Dying Cases are Being Sent to the Southwest.

Cruel and inhuman practices are alleged in a statement given out to-day by the National Association for the Study and Prevention of Tuberculosis against the eastern doctors who persist in sending dying cases of consumption to the Southwest.

Fully 7,180 persons hopelessly diseased with tuberculosis annually come to die in the States of California, Arizona, New Mexico, Texas and Colorado, most of them by order of their physicians. The statement, which is based upon the testimony of well-known experts, and all available statistics, shows that at least 50 per cent. of those who go to the Southwest every year for their

health are so far advanced in their disease, that they cannot hope for a cure in any climate under any circumstances. More than this, at least 60 per cent. of these advanced cases are so poor that they have not sufficient means to provide for the proper necessaries of life, which means that 4,315 consumptives are either starved to death, or forced to accept charitable relief every year.

It is not an uncommon thing, the National Association declares, for whole families, who can hardly eke out a living in the East, to migrate to the West in the hope of saving the life of some member of the family. In most instances, the abject poverty of such cases forces them to beg, or to live on a very low level. Often consumptives who cannot afford the proper traveling accommodations are found dead on the trains before reaching their destination. The resources of almost every charitable organization in the Southwest are drained every year to care for cases which would be self-supporting in their eastern homes.

It costs, on an average, at least $50 per month for the support of a consumptive in the Southwest, including some medical attention. The National Association strongly urges no one to go to this section who has not sufficient funds to care for himself at least one year, in addition to what his family might require of him during this time. It is also urged that no persons who are far advanced with tuberculosis go to so distant a climate.

Consumption can be cured, or arrested in any section of the United States, and the percentage of cures in the East and the West is nearly the same. Any physician, therefore, who sends a person to the Southwest without sufficient funds, or in an advanced or dying stage of the disease, is guilty of cruelty to his patient. Renewed efforts are being made to stop this practice, and to encourage the building of small local hospitals in every city and town of the country. Attempts are also being made in Southern California and in Texas to exclude indigent consumptives or to send them back to the East.

Materia Medica and Therapeutics

ADRENALIN INTRAVENOUSLY IN COLLAPSE.

Dr. B. Kothe, of the Hospital Moabit, of Berlin, states that adrenalin is the strongest analeptic which we possess at the present time. The dose is ½ to 1 cubic centimeter of commercial 0.1 per cent. of epirenan, which is the same as epinephrin. It is indicated especially in imminent acute disturbances of cardiac and respiratory actions. These intravenous injections are the most effective remedies in the severe collapses occasionally happening from lumbar anæsthesia and narcosis as well as in surgical shock. An injection of a combination of the adrenalin solution with salt solution is exceedingly useful in hæmorrhages and in peritonitis. Adrenalin should be on hand, together with other excitants (camphor, etc.), at every case of stupor and insensibility. (Therapie de gegenwart, 1909, p. 95.)

ANTIFORMIN IN THE DETECTION OF TUBERCLE BACILLI.

Dr. O. Seemann has employed antiformin for the purpose of facilitating the detection of tubercle bacilli in pus, urine, exudations, stools and organs. Antiformin is a mixture of eau de Javelle and sodium hydrate, and owes its action to oxidation processes. The author has found that it acts best in 15 per cent. solution. If sputum is diluted with fifteen to twenty times its volume of this solution, the pus soon becomes homogeneous, and in from ten to forty-five minutes a clear fluid with a sediment, which can be removed by centrifugalization, is obtained. If there is no special hurry to obtain a specimen, it is wise to wash the sediment, with distilled water, to remove the excess of alkali, so that the bacilli may adhere to the slide better. If any difficulty is experienced in getting the specimen to adhere, a little of the fresh sputum may be applied to a clean slide or some albumin water (1 part of beaten-up egg white to 10 of distilled water and 1 per cent. of formaldehyde solution) may be employed. Tubercle bacilli are not killed in 15 per cent. antiformin after one hour, so that the method can be used for animal injection as well as for microscopical specimens. The method can further be applied to examine blood for tubercle bacilli. This may prove of use in differentiating between typhoid fever, miliary tuberculosis and sepsis. The bacilli obtained from the antiformin fluid are found in pure culture, all other bacilli having been dissolved. (Berl. klin. Woch., April 5, 1909.)

BROMIDE ERUPTION IN CHILDHOOD.

Dr. F. C. Knowles reviews the literature and reports four cases of bromide eruption of unusual type occurring in children. He states that bromide eruption may occur in those who are susceptible, independent of the dose of the drug or the length of administration. The larger the dosage and the longer the ingestion, the greater is the chance of an outbreak. There are practically no constitutional or subjective symptoms in most cases. Because of the slow elimination, the eruption may continue to appear for some weeks after the drug has been discontinued. Almost any type of eruption may be present; in childhood the lesions are usually larger and more persistent than in adult life. The extremities and the face are the parts most frequently attacked; the most extensive eruption, in the majority of the cases, occurs upon the legs. Lesions have a great tendency to occur at points of previous inflammation, such as vaccination, scars, injuries, etc. (New York Medical Journal, March 20, 1909.)

CÆSAREAN SECTION, ADRENALIN IN.

Dr. Bogdanovics in a case of Cæsarean section where the wounded uterus contracted badly after extraction of the fœtus, acted on the recommendation of Neu, who used adrenalin to bring about contractions. Schäfer had long since pointed out that this compound acted very definitely on the muscular tissue of the non-gravid uterus. Bogdanovics's patient was a primipara, aged 31, with a typical flat, rickety pelvis and knock-kneed. The child was well developed, and the head presented; the os was beginning to dilate. The mother desired to have a living child and consented to any operation likely to save it. Symphysiotomy and delivery of the child through the rigid soft parts of this elderly primipara seemed dangerous on the child's account. Cæsarean section was preferred. A transverse fundal in-

cision was made, the child extracted alive, the membranes removed, and the uterine wound sutured with catgut. The uterine muscle, however, was highly atonic and free irrigation with warm saline solution failed to set up contractions. Bogdanovics therefore injected into four different points in the uterine wall 1 cubic centimeter of a 1 in 10,000 fresh solution of Richter's tonogen, a preparation of adrenalin recommended by Neu. The uterus at once contracted till it became of stony hardness, and the hæmorrhage from the incision ceased at once. The operation was concluded without any further complications and the puerperium was normal. (Zentralbl. f. Gynäk., No. 19, 1909.)

CALCIUM SALTS IN SKIN DISEASES.

Dr. Bettmann has obtained remarkable benefit in a certain proportion of itching skin affections from internal administration of calcium lactate in a 5 per cent. solution, one or two tablespoonfuls an hour before meals, three times a day, for three or four weeks. His experience with seventy cases showed that the remedy failed to influence the affection in the majority of cases, but in others the effect was marked and encourages further trials of this simple medication, which his experience has shown to be harmless. It proved efficient in conditions peculiarly rebellious to other measures, especially in the "toxicodermias." In senile pruritus; in particular, the effect was marked. (Münchener medizinische Wochenschrift, June 22, 1909.)

CHOLERA INFANTUM, CARROT SOUP IN THE TREATMENT OF.

Dr. C. Beck states that carrot soup used at the proper time will prove a good substitute for salt infusion in cholera infantum. In acute gastro-intestinal disturbances the great loss of fluids from the body is a direct menace to life. The introduction of salt by mouth, or subcutaneously, leads to retention of water and is, therefore, of great therapeutic value in these cases. Many infants, however, will persistently refuse to take salt solution even when the salty taste is somewhat disguised by the addition of bicarbonate of soda. For some time the author has administered in these cases carrot soup with very gratifying results. It is prepared as follows: A pound of carrots is cut up into small pieces and boiled in water for one to two hours; this is then strained through a fine sieve into a liter of bouillon made from a pound of beef. To this is added a teaspoonful of table salt. A liter of this soup has a caloric value of 250. The soup was readily taken and retained by all infants even when all other foods were rejected. Large quantities, 200, 300 cubic centimeters were given at intervals of three to four hours. The severe symptoms of collapse usually disappeared within one to three days, the temperature dropped and the weight increased. The stools became pultaceous, of reddish-yellowish color, and the odor disappeared. With the exception of a few gram-negative bacteria all micro-organisms disappeared from the stools. (Jahrb für Kinderhk., May 5, 1909.)

CEREBELLAR TUMOR, REMOVAL OF.

Drs. T. Diller and Otto C. Gaub, Pittsburg, have analyzed the statistics of removal of cerebellar tumors and find that the mortality of the operation has been notably reduced within the last few years. They also quote a letter from Dr. Harvey Cushing, of Baltimore, giving his opinion based on experience

of thirty cases, who thinks that with a certain method of operating the results may be as favorable as in the case of lesions of the cerebral hemisphere. He says: "It is my feeling that with a proper face down position on a suitable operating table, with a skilled anæsthetist and with a low operation with removal of the posterior half of the foramen magnum so as to get below the lips of the cerebellum and evacuate fluid before the dura is freely opened, these cases, contrary to the opinion that has been expressed by others, are as favorable, if not more favorable, for operation as lesions of the cerebral hemisphere." The other side of the case has been shown by Knapp, of Boston, who, in his paper published in 1906, concludes from the study of 104 autopsies of brain tumor, that only four were anatomically accessible and presented enough clinical symptoms to be correctly located for the purpose of operation. A number of other authorities are quoted and the clinical and pathologic record of their own cases is given with special detail. The operation seems to have been done according to Cushing's method for the most part, except that the patient was placed on his left side with a sand bag under the head. The operation was a success. The patient was relieved and has continued to do well. The features which seem to the authors specially noteworthy are given as follows: "1. The excellent recovery of the patient after the operation and his great improvement. 2. The position of the head, bent forward to the left on the chest and rotated to the right. This is against the common statement that in cerebellar tumors the head is drawn backward. 3. The very rapid subsidence of the optic neuritis following the operation. 4. The fact that the optic neuritis was greater on the right side—the side of the tumor—than the other side. 5. The great practical value of exposing the cerebellum over both sides; this, not only because it is frequently difficult to decide on which side a tumor is located, but because such an opening allows for far better manipulation and exploration of the cerebellum. Without this double opening the tumor in this case probably could not have been enucleated. 6. The fact that considerable manipulation and even destruction of the cerebellar lobe is compatible with life. 7. The position of the patient on the operating table and the surgical technic are of the greatest importance. 8. The cardiac complication—the apparent development of an endocarditis which seems to have disappeared now." The tumor was situated in the right lobe, from one-third to one-half of which was cut away in removing it. Its size was about that of a hickory nut and the pathologic diagnosis was myxosarcoma teleangiectatum. (Journal of the American Medical Association, July 31, 1909.)

ETHYL CHLORIDE AS AN ANÆSTHETIC.

Dr. A. H. Miller says that the relative danger from an anæsthetic depends on two factors: the margin of safety of the drug, and the character of the danger signs. The margin of safety of an anæsthetic may be represented by the proportion of the drug which may be administered beyond the amount required to produce anæsthesia without causing symptoms of danger. Nitrous oxide has a small margin of safety, but the danger signs are so marked that nitrous oxide anæsthesia is the safest known. Ether has a fairly large margin of safety and quite well marked danger signs, so it is quite a safe anæsthetic. Chloroform

has but a small margin of safety, and the danger signs are readily overlooked. It is always a dangerous anæsthetic, but especially so in inexperienced hands. Ethyl chloride has a large margin of safety, but the danger signs are not marked. While it is very safe when administered by an expert, it may be very dangerous in unskilled hands. With an expert administrator, it should be safer than ether, but less safe than nitrous oxide. With an unskilled or careless administrator, it is probably more dangerous than ether, but not as dangerous as chloroform. (Boston Medical and Surgical Journal, May 20, 1909.)

FACIAL PARALYSIS, TREATMENT OF.

Dr. F. Marsh reports the treatment of facial paralysis in two patients due to the division of the facial nerve in the mastoid operation. They show (1) that if division of the facial nerve is recognized at the time of operation, careful adjustment in the manner indicated (the use of strands of chromicized catgut) will probably result in the restoration of the function; (2) that if division has not been recognized the wound should be reopened and the nerve ends adjusted at the earliest opportunity; (3) that if a careful adjustment has been made a second operation should not be undertaken within three or four months; (4) that this method of adjustment should be tried before anastomosis with the hypoglossal or spinal accessory nerves is attempted, the results of which are not always gratifying. (British Medical Journal, June 5, 1909.)

FARADIC CURRENT IN OTOSCLEROSIS.

In an interesting and exhaustive compilation, author gives different views as to the nature and etiology of otosclerosis which he himself considers a disease of the inner muscles of the ear. Finding the cause in this, he directs his treatment towards the weakness and atrophy of these muscles, the stapedius and the tensor tympani, using the electro massage. He reports twenty cases treated in this manner and noticed a decided improvement in the function of the stapedius as well as in the tensor tympani, causing a diminution disappearance of the tinnitus aurium, as well as an improvement in the hearing. He reaches the following conclusions based on his experience: 1. In all persons afflicted with otosclerosis the function of the tensor tympani is impaired or lost entirely; very rarely is it retained and in this case we must therefore consider an isolated primary affection of the stapedius muscle. 2. Ear noises, under the influence of faradization disappear entirely or diminish to such a degree that they do not annoy the patient. 3. By this method of treatment the hearing distance is increased, due to the improvement in the capacity of accommodation. 4. In faradization one electrode is introduced into the opening of the Eustachian tube and the button of the electrode pressed against the superior wall. The second electrode is placed on the angle between the lower jaw and the mastoid process. 5. The intensity of the current varies in different individuals. As a rule the strongest current that the patient can stand should be used. 6. The duration of the sitting should be three to five minutes, the frequency of the sittings not less than three times a week. (The Medical Fortnightly, July 10, 1909.)

GASTRIC ULCER, TREATMENT OF.

Dr. Mayerele reviews the various methods in vogue and reports his results in 71 cases of gastric ulcer in

which he applied Lenhartz's method. The list includes 29 recent, bleeding gastric ulcers, 17 chronic and 25 uncomplicated recent cases. His verdict is favorable on the whole, as smooth recovery was noted in 65 per cent., slow recovery without recurrence in 11 per cent., and with recurrence in 14 per cent. In 10 per cent. no benefit was apparent, or it was transient while in 7.1 per cent. the diet was not tolerated. In no case was any injury apparent from the diet commenced immediately after the hæmorrhage. Occasionally the Lenhartz diet seemed to increase the tendency to hyperchlorhydria and the allied hypersecretion. In these cases it was found necessary to increase the proportion of fat in the diet, while reducing the proportion of albumin. In the chronic cases with reduced acidity a diet with less albumin, moderate fat and carbohydrates predominating answered the purpose better. (Archiv. für Verdauungs-Krankheiten, Berlin, June, 1909.)

VAGINAL CÆSAREAN SECTION, TECHNIQUE AND INDICATIONS FOR THE.

Dr. A. Duhressen in (Gyn. Rund., Jahr. II, Heft 22) gives the technique of the vaginal Cæsarean section as follows: The operation is preceded by an injection of ergotin, an incision is then made on the right side of the vagina through the perineum large enough to admit the fist of a full-sized man. The cervix is now grasped with forceps and the posterior lip split up to the roof of the vagina; by prolonging this incision backward the *cul-de-sac* of Douglas is opened, and the peritoneum separated from the uterus. The anterior lip and vaginal junction are split in the same way, and the urinary bladder separated in a similar manner; thus the anterior and posterior walls of the body are exposed for a distance of six centimeters and this is now quickly incised with a pair of scissors, the resulting opening shows the amniotic sac large as a man's fist. A hand is pushed into the uterus, the foot of the fœtus is grasped, and the child is extracted. The indications for this operation are eclampsia, in which better results are obtained by this method than by any other; placenta prævia, when the cervix is not widely dilated enough to allow the use of a rubber balloon, and combined version, or when the delay would destroy the life of the child. The author has never seen lesions of the bladder produced by this operation. In cases of danger to the child alone with undilatable cervix, the vaginal section is indicated. (Nashville Journal of Medicine and Surgery, July, 1909.)

Book Reviews

THE PRINCIPLES OF PHARMACY. By Henry V. Arny, Ph.G., Ph.D., Professor of Pharmacy at the Cleveland School of Pharmacy, Pharmacy Department of Western Reserve University. Octavo of 1175 Pages, with 246 Illustrations, Mostly Original. Cloth, $5.00 net; Half-morocco, $6.50 net. Philadelphia and London: W. B. Saunders Company, 1900.

This volume, which is clearly written and well illustrated, aims to give a succinct account of the Pharmacopœia from its pharmaceutical standpoint. No author has undertaken to go so fully and exactly into details as the author of this work which is as complete as any work now before the pharmaceutical and medical profession. It is divided into seven parts:

Part I.—Pharmaceutic Operations.
Part II.—Galenic Pharmaceutic Preparations.
Part III.—Inorganic Chemistry.
Part IV.—Organic Chemistry.
Part V.—Pharmaceutic Testing.
Part VI.—The Prescription.
Part VII.—Laboratory Exercises.

The work has been prepared with great care and accuracy and the special features are equation writing, chemical arithmetic, and a grouping of all the tests of the pharmacopœia.

The text is well written and omits all useless verbage and no point desirable in such a work has been overlooked. The book is handsomely bound, well written, and is printed in very readable type. A contribution to pharmaceutic literature by so high an authority as Dr. Arny is worthy of mention.

Diet in Health and Disease. By Julius Friedenwald, M.D., Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhräh, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Third Revised Edition. Octavo of 764 Pages. Cloth, $4.00; Half-morocco, $5.50 net. Philadelphia and London: W. B. Saunders Company, 1909.

This work combines a knowledge of the various kinds of foods, their composition, uses, and the principles of diet both in health and in disease. The aim of the authors has been to present in a brief space diet lists and recipes for the benefit of the practitioner as well as the student. Fortunately for the reader who is not familiar with the present day knowledge of chemistry and physiology of digestion, the book begins with the chemistry of digestion and gives a thorough consideration to absorption, metabolism, and the different enzymes.

Among the topics considered are: "Classes of Foods," "Beverages and Stimulants," "Various Factors and Their Bearing on Diet," "Infant Feeding," "Diet for Special Conditions," "Special Methods of Feeding," "Diet in Disease," "Special Cures," "The Dietetic Management of Surgical Cases," "Army and Navy Rations," "Dietaries in Public Institutions," "Recipes," "The Chemical Composition of American Food Materials," "Rapid Reference Diet Lists." The dietetic treatment of diabetes is very elaborate and there are many tables containing foods sanctioned and forbidden by the various authorities. The methods of treating obesity also deserve mention. On the whole the book cannot be too highly commended as a practical handbook for every day use.

The American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, M.D., editor "The American Illustrated Medical Dictionary." Sixth Revised Edition. 32mo of 598 Pages. Flexible Morocco, gold edges, $1.00 net; thumb indexed, $1.25 net. Philadelphia and London: W. B. Saunders Company, 1909.

This small volume is very handy in size, and at the same time it is very rich in material. It contains a maximum amount of information in a minimum amount of space, arranged for quick study and reference. This book will prove valuable to not only the practitioner but also to the student in preparing for examinations.

A commendable feature of this unique little book is the tables which contain exact and valuable knowledge so conveniently arranged and classified and also gives the desired information concerning the newer and more recent words.

The print is excellent and the terms are easily understood and will indeed prove an indispensable work of reference.

Treatment of the Diseases of Children. By Charles Gilmore Kerley, M.D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital, etc. Second Revised Edition. Octavo of 629 Pages, Illustrated. Cloth, $5.00 net; Half-morocco, $6.50 net. Philadelphia and London: W. B. Saunders Company, 1909.

The material of this book has undergone a thorough revision and contains extensive changes in accordance with the modern methods of management and therapeutic measures in the treatment of children. The author has had exceptional opportunities and this volume is the result of years of experience and the comparative study of many cases.

The scope of this work is clearly indicated by its title and the first one hundred and fifty pages are devoted to information of a preliminary nature in regard to feeding, nutrition and growth of the infants. The classification of diseases is rational and convenient and the general and hygienic treatment is well pointed out and constitutes an important feature.

The special features of the book are the chapters dealing with "Vaccine Therapy," in which the authors describes the new diagnostic methods, "Gymnastic Therapeutics." Among other chapters worthy of mention are "Diseases of the Respiratory Tract," "Contagious Diseases," "Constitutional Disorders," "Infectious Diseases." The book is exceedingly valuable to the practitioner.

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Original Articles

Department in charge of J. MADISON TAYLOR, A.M., M.D.

CONSTITUTIONAL CONDITIONS AFFECTING NASAL CATARRH.

BY CHARLES W. RICHARDSON, M.D.,
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WASHINGTON, D. C.

IT is not my purpose in treating of this subject to take up the consideration of those organic lesions of the various organs and systems of the body which are well known to have as correlated symptoms some disarrangement of the mucosa of the upper air tract, but rather to call your attention to the subtle influences that certain conditions, unattended with any organic change, exert upon the mucous membrane of the nose, throat and even the bronchial mucous tract. During the early stages of these disturbances, and ofttimes nearly throughout the history of these cases, the evidences of perverted function will be manifested solely in the regions indicated. The local manifestation of these disturbances are more frequently in the form of vascular changes in the turbinal tissue of the nasal tract. They may be divided into three groups, viz.: (a) paroxysmal form of vasomotor turgescence of the nasal mucosa, occurring occasionally at periods during the day, more frequently at night; (b) a more or less constant type of vasomotor turgescence of the nasal mucosa, which is most intense during the night; (c) a vasomotor turgescence of the nasal mucosa occurring at night, and which is attended with a similar condition in the bronchial tract, as evidenced by coughing and wheezing.

The etiological factor that enters into causation of these disturbances is an inordinate demand made upon the nervous system without a proportionate amount of physical exercise and rest. The type exemplified by the first

group occurs most frequently in vigorous males, who are addicted to intense mental work to which they enslave themselves. They are usually of the neurotic temperament. They are sedentary in their habits, do not participate in any form of physical exercise, and abide most of the time in badly ventilated, overheated office rooms. A typical case of this form is represented by a young man who came under my observation several months past. The patient was a vigorous, healthy individual of twenty-eight years. He complained of a moderate degree of difficulty in breathing through the nasal chambers during the day. His great distress occurred usually between one and two o'clock in the morning, when he would be awakened by sneezing, coughing, or a sensation of impending suffocation. Nasal obstruction was complete at this time. The remainder of the night would be passed in a more or less troubled slumber. A violent paroxysm of sneezing usually transpired on arising in the morning. Physical examination demonstrated the turbinates very much congested and so hypertrophied as to nearly fill out the lumen of the nasal cavities. Contraction was quite fair under cocaine, only showing here and there areas of structural hypertrophy. The history obtained was as follows: He is employed in one of the scientific laboratories of the Government where his work is very exacting in character. His hours of employment are from nine in the morning until four in the afternoon. For two years he has been attending a course in one of the law schools. It was his habit to go from the Department to the University, where he spent from two to three hours in lectures, etc.; his evenings were invariably spent in study; his retiring hour was about twelve and he rose about seven in the morning; his digestion was good; urine showed excess of phosphate, no indican; he took no physical exercise and always used the cars instead of walking. I indicated to him the necessity of cutting out much of his work, the taking of a certain amount of physical exercise, and living a more normal life. I refused through cauterization or other surgical methods of attempting to restore the patency of his nasal cavities. My efforts, though repeated and insisted upon at each subsequent visit, seemingly fell upon barren soil, and, as usual, he sought other advice. About six weeks thereafter he returned to me and recounted his experience. Several cauterizations had taken place without relief, and he had been twice advised—even to insistence—that he should have his turbinates torn out. A thorough consideration of the subject again, caused him to follow my advice, finally deciding to relinquish his law course. At the end of two months he reported for inspection, announcing that he had, for over two weeks, felt entirely well. On inspection of the nasal chambers, I found them in a perfectly normal state.

The second group of cases occurs almost entirely among the female sex; it is evident in those of a neurasthenic temperament, most frequently in women who are office workers, whose duties are exacting, and require the expenditure of great nervous energy. Individuals coming under this group take very little physical exercise, their lives both in and out of their duties being very sedentary. An example of this form is represented by a young woman stenographer of twenty-eight years of age, employed in a local business office. In order to increase her financial resources, she is employed in the evening as stenographer

in the office of one of the correspondents of an out-of-town newspaper. She presented herself to me some months ago for professional advice. She is of moderate height, of slight form, and quite nervous manner. She stated that she had great difficulty of breathing, which was almost constant, the obstruction being complete at night; headache was more or less constant and very intense after paroxysms of sneezing, which occurred in paroxysms of great intensity often attended with great exhaustion. Examination of nasal chambers demonstrated the nasal mucosa somewhat paler than normal. The mucosa over the turbinates was of a pale pinkish-white color. The turbinates were intensely relaxed, so much so as to fill out completely the lumen of the nasal cavities. The turbinates contracted up rather slowly unless under the use of cocaine; the urine showed excess of phosphate—no indican. The relinquishing of the excess work, the administration of the proper nervines, the taking of a proper amount of exercise, the obtaining of the normal amount of rest, and the administration of the required local treatment brought about complete resolution after several months' care.

The third type is not so intensely individual in its character as the first two. It may be engrafted on either of the former conditions after they have existed for a varying period, or may have no antecedent vasomotor disturbance. This condition may be exemplified by the history of a very busy office worker. The patient is a man of forty-eight years of age, in apparently excellent health; no disease demonstrated in any of the organs or great systems of the body; a most intense worker, especially during the season when his activities are in greatest demand; eats sparingly though always with good appetite; takes practically no regular exercise; states that for several months he has had a dry, paroxysmal cough, which comes on at varying periods of the day, which would endure for an hour or more and then subside. Ofttimes he would be entirely free of the cough throughout the day, when towards the late afternoon, after a particularly arduous and trying day, it would start up. At times, he thought the paroxysms of coughing occurred at intervals of about six hours, when this theory would be broken up by its absence throughout the whole day. The paroxysms occurring about two to three in the morning were the most distressing. The paroxysms of coughing during the night were always attended with complete nasal respiratory blockage of one or the other nostril, frequently with both. The same degree or a more moderate obstruction to nasal breathing was frequently manifested with the day paroxysms. There was frequently an uncomfortable feeling of tightness about the sternal region during the paroxysms. Distinct wheezing was occasionally felt but no characteristic asthmatic manifestation had as yet developed. Examination of the nasal chambers showed the existence of a moderate hypertrophic nasal catarrh; examination of urine showed excess of phosphate but no other abnormality. Under the appropriate treatment this patient made a slow but continuous restoration. Violation of the within laid down rules would be speedily followed by its own punishment.

The above described conditions have several features in common. They have a common origin and similar etiological factors. They are the product of

unhygienic methods of living and working; they are the result of overworking the entire nervous system, which is followed by impairment of the harmony of action of the vasomotor system. The rational treatment of these cases is to diminish the amount of work, increase the amount of exercise, living in the open air as much as possible with rest and proper diet. Unfortunately the proper correlation of constitutional and local treatment is not always carried out. The local treatment is the form that frequently receives the greatest attention, and, as a result, these unfortunates suffer cauterization of the turbinates and even the horrors of partial or complete turbinotomy. Under my observation these patients usually fare best with the mildest of local treatment, of which cauterization and turbinotomy form no part, with the most assiduous care to their welfare, viz., the searching for, and removal of, the causes.

THE PROGNOSIS OF FEBRILE CASES OF PULMONARY TUBERCULOSIS.*

By HARRY LEE BARNES, M.D.,

Superintendent of the State Sanatorium, Wallum Lake, R. I.

An accurate prognosis of febrile cases of pulmonary tuberculosis must be made from a consideration of all the factors which enter into the prognosis of all cases whether febrile or afebrile. The facts as to age, sex, race, and social condition are to be weighed, but they are usually of no great importance. An examination of the lungs will usually give an approximate idea of the damage done and this amount of lung involvement should be considered in connection with the presumable duration of the disease, for this is the most practical way of measuring the virulence of the infection against the patient's resistance to that infection. If five lobes are involved after five years, the prognosis may be much better than when two lobes have been involved in two months.

A very important consideration is the amount of intelligence, self-control, and willingness to co-operate manifested by the patient. It usually matters little whether the pneumonia or typhoid patient has intelligence, but if the tuberculous patient is so lacking in common sense or character that he cannot or will not follow a physician's advice, he will frequently pay for his foolishness or willfulness with his life.

Of 15 incipient patients who left the Rhode Island State Sanatorium against advice, the subsequent histories 16 months after discharge showed that 40 per cent. were well, 40 per cent. living, and 20 per cent. dead, while the subsequent histories of all incipient cases discharged by the sanatorium taken on an average of 18 months after discharge showed 85.7 per cent. well, and 14.3 per cent. dead. Of 124 moderately advanced cases who left against advice the subsequent histories, 13 months after discharge, showed that 17.7 per cent. were well, 50 per

* Read before the American Climatological Association, at Fortress Monroe, Virginia, June 4, 1909.

cent. were living, and 32.2 per cent. were dead, while the subsequent histories of all (162) moderately advanced cases for the same period showed 40 per cent. well, 30.2 per cent. living, and 29.2 per cent. dead. Stated in a few words, the patients who reject our advice throw away over half their chances of getting well and keeping well. Many cases occur in which lack of money to procure good food, good housing, fresh air, and freedom from work during active disease, has a marked influence on the prognosis. Yet our statistics tend to show that this is usually not the case with our patients.

We have compared the subsequent histories of 265 of our pay patients with those of all our patients (70 per cent. of which are free), and find that two years after discharge 76.9 per cent. of all our incipient patients are well, as compared to 54.2 per cent. of our incipient pay patients, and that 35.4 per cent. of all our moderately advanced patients are well, as against 18.1 per cent. of the moderately advanced pay patients.

A comparison of the subsequent histories of pay patients with those of all patients, according to the condition on discharge, also results unfavorably to the pay patients, as shown by the following table computed 22 months after discharge.

	ALL CASES			PAY CASES		
	WELL	LIVING	DEAD	WELL	LIVING	DEAD
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Apparently Cured.....	78.5	14.2	7.1	70.0	25.0	5.0
Disease Arrested.....	50.0	19.6	30.3	33.7	46.0	20.2
Disease Active.....	21.0	13.6	65.2	6.7	26.3	66.8

While a considerable proportion of our pay patients are enabled to pay only from benefits received and practically all are from the working classes, yet it is undoubtedly true that the standard of living averages better among the pay patients. The supervision of free patients, after discharge, by the clinics and visiting nurses may account to some extent for the good results among the free patients.

In this series of 153 cases there was an increase in the activity of the lesions as shown by increase of some one or all of the signs usually accepted as evidence of the progress of the disease, namely, dullness, broncho-vesicular breathing, increased voice conduction, and râles, in 50 cases, or 32.6 per cent. The average duration of the fever in these cases before the increase in signs was noted was 5 weeks. In 33 cases, or 21.5 per cent., signs of disease appeared in lobes in which it had not previously been detected. Of 30 of these patients who could be traced 24, or 80 per cent., were dead, the average length of life being 5 months. The total number of cases in which the signs of disease were either increased, or appeared in lobes in which they had not been found before, was

74, or 48.3 per cent. The fact that about 50 per cent. of these fever cases showed no signs of the extension of the disease is probably in part explained by the short period in which the fever was observed in many cases (59 less that one month), and by other cases having had an extension of the signs shortly before admission (fever present on admission). It must be admitted, however, that patients quite occasionally have fever lasting several weeks in which no signs of extension of the disease can be detected.

Of the 153 cases whose fever was under observation for a period averaging 4.1 weeks, 17, or 11.1 per cent., developed cavity signs. Sixty-two of these patients were under observation for periods of but one to four weeks, and doubtless many patients developed cavity signs after leaving the sanatorium. Tympany and amphoric resonance were frequently found as cavity signs, but no case was considered to have a cavity unless whispering pectoriloquy, cavernous or amphoric breathing and large moist râles were present. Eleven, or 64.1 per cent., of the cases having cavity signs developed them within the first month and 13, or 76.4 per cent., within the first six weeks. While these signs are frequently not found when cavities are present, yet the fact that most of the cavity signs appeared early in the course of the fever, and that of 53 cases in which the fever had lasted from six weeks to five months, but 3 developed cavity signs, seems to indicate that long continued fever more frequently accompanies a general spreading of the infection than cavity formation. Only one case developed cavity signs without fever. The subsequent histories of 51 patients having cavity signs are shown by the following table. "Length of life" in the febrile cases refers to the time elapsed between the onset of the fever and the death of the patient. In all the subsequent tables the patient's condition was determined at periods averaging 27 months after the onset of the fever, and averaging 23 months after discharge from the institution.

	Cases	Well	Living	Dead	Length of Life
Cavity Signs Developed in the Sanatorium. Febrile.....	16	0	3	13	8.9 Months
Cavity Signs Present on Admission. Febrile.....	24	0	3	21	13.9 Months
Cavity Signs Present on Admission. Afebrile.....	11	1	4	6	15.2 Months
Total.....	51	1 or 1.9 %	10 or 19.6 %	40 or 78.4 %	12.4 Months

A consideration of the two following tables will show that while many patients who lose weight during febrile attacks recover, their mortality is, nevertheless, far greater in a given time than that of patients who gain weight during the fever. A study of the changes in bodily weight is shown to be of

much more prognostic value in those cases in which the fever was not reduced than in those in which it was reduced.

Of the "unreduced cases" those patients who gained weight lived for an average period of 11.3 months, while those patients who lost weight lived for an average period of but 6 months.

SEVENTY CASES. FEVER REDUCED.

31 cases gained weight.
Average gain, 5.2 pounds.
Well, 4 cases, or 12.9 per cent.
Living, 13 cases, or 41.9 per cent.
Dead, 14 cases, or 45.1 per cent.
Average duration of life, 10 months.

39 cases lost weight.
Average loss, 9.3 pounds.
Well, 10 cases, or 25.6 per cent.
Living, 6 cases, or 15.3 per cent.
Dead, 23 cases, or 58.9 per cent.
Average duration of life, 13 months.

FORTY CASES. FEVER UNREDUCED.

12 cases gained weight.
Average gain, 4.7 pounds.
Well, 1 case, or 8.5 per cent.
Living, 1 case, or 8.5 per cent.
Dead, 10 cases, or 83.8 per cent.
Average duration of life, 11.3 months.

28 cases lost weight.
Average loss, 5 pounds.
Well, 1 case, or 3.5 per cent.
Living, 1 case, or 3.5 per cent.
Dead, 26 cases, or 92.8 per cent.
Average duration of life, 6 months.

In the following tables two daily observations of the pulse (morning and evening) were averaged for one week during which the fever was highest. They confirm the generally accepted view that a consideration of the pulse-rate is of great value in the prognosis of tuberculosis.

Pulse records and subsequent histories of 54 cases having daily maximum fever of 99.5° F. to 100° F.:

PULSE	WELL		LIVING		DEAD		TOTAL	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
70 to 80	0	0.	5	100.	0	0.	5	100.
80 to 90	5	31.2	6	37.5	5	31.2	16	99.9
90 to 100	1	6.2	7	43.7	8	50.0	16	99.9
100 to 110	3	21.3	3	21.3	8	57.1	14	99.7
110 to 120	2	33.3	1	16.6	3	50.0	6	99.9
Over 120	0	0.	0	0.	2	100.	2	100.

Pulse records and subsequent histories of 141 cases having daily maximum fever of 100° F. or over:

Pulse	Well		Living		Dead		Total	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
70 to 80	2	or 100.	0	or 0.	0	or 0.	2	or 100.
80 to 90	4	or 23.5	9	or 52.9	4	or 23.5	17	or 99.9
90 to 100	5	or 11.6	12	or 27.9	26	or 60.4	43	or 99.9
100 to 110	10	or 18.5	9	or 16.6	35	or 64.8	54	or 99.9
110 to 120	1	or 5.2	3	or 15.7	15	or 78.9	19	or 99.8
Over 120	1	or 16.6	0	or 0.0	5	or 83.4	6	or 100.

Of 54 cases in which the daily maximum temperature ran from 99.5° F. to 100° F., but 5 cases, or 9.2 per cent., were well whose pulse-rate averaged over 100. Of 141 cases in which the daily maximum temperature averaged 100° F. or over, but 12, or 8.5 per cent., of those whose pulse averaged over 100 were well, and but 1 of the 141 cases was well whose pulse averaged over 120 (125). This patient is a man who has worked steadily as a hospital porter for over three years.

The continued presence of fever, especially after rest in bed, usually means renewed activity of old lesions or the extension of the disease to healthy tissue. The following study was made from the records of 153 febrile cases of pulmonary tuberculosis treated at the Rhode Island State Sanatorium during the past four years. Only cases having an average daily maximum temperature of 100° F. or over for at least one week were included. In the statements concerning the length of fever, reference is made to the whole period of abnormal temperature, the last few days of temperature below 100° F. being included.

Of 50 patients who ran an average daily maximum temperature of 100° F. for periods averaging 3.3 weeks, there were, 27 months after the onset of the fever:

Well ..... 7 cases, or 14 per cent.
Living ..... 8 cases, or 16 per cent.
Dead .....35 cases, or 70 per cent.

Total .....50 cases, or 100 per cent.

Of 66 patients who ran an average daily maximum temperature of 100° F. to 101° F., for periods averaging 4.9 weeks, there were:

Well ..... 8 cases, or 12.1 per cent.
Living .....14 cases, or 21.2 per cent.
Dead .....44 cases, or 66.6 per cent.

Total .....66 cases, or 99.9 per cent.

Of 15 patients who ran an average daily maximum temperature of 101° F. to 102° F., for periods averaging 3.4 weeks, there were:

Well	3 cases,	or 20 per cent.
Living	2 cases,	or 13.3 per cent.
Dead	10 cases,	or 66.6 per cent.
Total	15 cases,	or 99.9 per cent.

Two patients having an average daily maximum temperature of from 102° F. to 103° F. died 2 and 24 months, respectively, after discharge. From these tables it appears that the height of the temperature within the above limits is of no prognostic significance, probably because many small acute lesions are accompanied by higher temperatures than larger chronic ones.

That the duration of the fever is of marked value in prognosis is well shown by the percentage of dead in the following table:

CONDITION TWENTY-SEVEN MONTHS AFTER THE ONSET OF FEVER.

DURATION OF FEVER	CASES	WELL		LIVING		DEAD		LENGTH OF LIFE IN MONTHS, AFTER DISCHARGE
		No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	
1 and 2 Weeks	35	6	17.1	7	20.	22	62.8	8.3 Months
3 to 4 Weeks	27	6	22.2	6	22.2	15	55.5	6.1 Months
1 to 2 Months	39	6	15.3	6	15.3	27	69.2	12.8 Months
2 to 3 Months	11	3	27.2	0	0.	8	73.8	10.8 Months
3 to 4 Months	12	1	8.3	2	16.6	9	74.9	16.6 Months
Over 4 Months	13	2	15.3	1	7.6	10	76.9	16.6 Months
Total	137	24	17.5	22	16.	91	66.4	10.3 Months

In 103 cases the fever was reduced by complete rest in bed. The subsequent histories of 93 of these cases which have been traced show that there were:

Well	24 cases,	or 25.7 per cent.
Living	18 cases,	or 19.4 per cent.
Dead	51 cases,	or 54.8 per cent.
Total	93 cases,	or 99.9 per cent.

Frequent relapses of fever occurred in most of the fatal cases.

In 44 cases which were treated for periods varying from 1 to 24 weeks and averaging 3.6 months the fever was not reduced. The subsequent histories show that there were:

Well	0 cases,	or 0	per cent.
Living	4 cases,	or 9	per cent.
Dead	40 cases,	or 90.9	per cent.
Total	44 cases,	or 99.9	per cent.

In considering the respiratory rate in its relation to prognosis considerable allowance must be made in individual cases for the height of the fever and for the element of nervousness, especially in women. The subsequent histories of 71 febrile patients obtained 22 months after discharge, showed that of 52 patients whose respirations were under 30 per minute, 61$\frac{5}{10}$ per cent. were dead, while of 19 patients whose respirations were over 30, 78$\frac{9}{10}$ per cent. were dead. An increase in the respiratory rate in afebrile cases is of more serious import.

Conclusions.—Patients who, from lack of intelligence or unwillingness to sacrifice pleasures and comforts, leave the sanatorium against our advice, lose over 50 per cent. of their chances of recovery.

2. The subsequent histories of patients at the Rhode Island State Sanatorium show that the results of treatment of pay patients are less favorable than those of all patients.

3. Of 153 febrile cases, an extension of the lung disease was indicated by an increase of physical signs in 50 cases, or 32.6 per cent., and by the appearance of signs in lobes previously clear in 33, or 21.5 per cent.

4. The average number of fever patients under observation from 1 to 4 weeks was 106 and of this number 11, or 10 per cent., developed cavity signs.

5. Of 18 patients under observation while cavity signs developed, 17, or 94.4 per cent., had fever. Thirteen, or 76.4 per cent., developed cavity signs within 6 weeks from the onset of fever.

6. Of 16 febrile patients in whom development of cavity signs was observed, 13 died in periods varying from 2 to 14 months, the average duration of life being 8.9 months.

7. Of 24 febrile patients having cavity signs on admission, 21, or 87.5 per cent., died within 2½ years, the average duration of life being 13.9 months.

8. Unreduced fever cases who gain weight during the fever live about twice as long as those who lose weight.

9. Only 8.5 per cent. of febrile cases whose pulse averaged over 100 were well 22 months after discharge.

10. It is of comparatively little importance whether the average daily maximum temperature is 100°, 101°, or 102° F., the duration rather than the height of the fever being the deciding factor in the prognosis.

11. The subsequent histories of febrile patients 27 months after the onset of fever showed that:

Of 62 patients who had fever 1 to 4 weeks 59.6 per cent. were dead.
Of 39 patients who had fever 1 to 2 months 69.2 per cent. were dead.
Of 11 patients who had fever 2 to 3 months 72.7 per cent. were dead.
Of 12 patients who had fever 3 to 4 months 75 per cent were dead.
Of 13 patients who had fever over 4 months 77.7 per cent. were dead.

12. Of 93 cases in which the fever was reduced after periods of treatment averaging 5.9 weeks, there were 27 months after the onset of fever:

Well	24 cases,	or 25.7 per cent.
Living	18 cases,	or 19.4 per cent.
Dead	51 cases,	or 54.8 per cent.
Total	93 cases,	or 99.9 per cent.

13. Of 44 cases in which the temperature could not be reduced after treatment from 1 to 6 months, 40, or 90.9 per cent., were dead, the duration of life varying from 1 to 18 months, and the average duration of life after the onset of fever being 6.7 months.

THE THREE-DAY TREATMENT OF DRUG AND ALCOHOL HABITUÉS WITH HYOSCINE.

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The name hyoscine was first applied by Ladenburg in 1880 to an alkaloid of hyoscyamus possessing nerve depressant, mydriatic and hypnotic properties. Individual patients show a varying degree of susceptibility or idiosyncrasy and tolerance for the drug as may be seen in the following: P. S. Root[1] reports a case of poisoning from a single hypodermic dose of hyoscine hydrobromate of $\frac{1}{300}$ grain; W. A. Carey,[2] three cases from a dose of $\frac{1}{100}$ grain; L. W. Morton,[3] one case from $\frac{1}{75}$ grain hyoscine, five minutes after injection.

On the other hand marked tolerance for the drug is shown by the following instances: During active treatment of one of H. G. Wagner's cases, after physiological effects had been obtained by the usual method, $\frac{1}{10}$ grain of hyoscine was given by mistake without any ill effects. W. H. H. Githens[4] reports a case of accidental dose by mouth of $\frac{4}{5}$ grain hyoscine without ill effects.

A Résumé of the Literature on the Treatment of the Drug Habit by Hyoscine Hydrobromate.—The first to have successfully and openly used it, was M. K. Lott[5], [6], [7], who reported 25 cases of the morphine habit thus treated in 1901, and again in 1902[7] he reported 34 cases. J. M. Buchanan[8] reported 12 cases, treated by hyoscine, at the proceedings of the American Psychological Association in 1903, and L. Abramson[9], 20 cases of the drug habit treated in this way. He wrote me, that before giving up the method he used it in 100 cases with no deaths. Sixty of the one hundred remained permanently free from the use of drugs. Forty per cent. relapsed.

R. E. Behring[10], [11] reported six cases of the morphine habit and four alcoholic addicts successfully treated. He considers it as specific in the morphine habit as antitoxin is for diphtheria. A. W. Richardson[12], one case of the morphine habit treated by the hyoscine method; J. M. Catchings[13], accurately and in detail, 15 cases of the opium habit treated with hyoscine; H. G. Wag-

ner[14], 5 cases of the drug habit and 7 cases of the liquor habit. The latter two authors give the most reliable and accurate course to pursue. I prefer the method described by Wagner. It seems to me the less dangerous of the two, because of the small amount of hyoscine necessary in a given case, due to its combination with atropine and strychnine, which I believe are somewhat supportive and therefore safer. Catching's method of a demonstration is practically the same, except that he uses hyoscine alone and uncombined with other drugs.

The most remarkable series of cases treated by this method, but not yet reported, I have learned of in a letter from C. C. Stockard. He has treated 800 cases of the various drug habits during the past ten years by the hyoscine method, but of late uses it only in patients who suffer too much pain from the gradual withdrawal of the morphine which he finds to be about one in four, or 25 per cent. of all cases. He mentions two deaths in this series, one from pneumonia, the second caused by perforating appendicitis. No deaths occurred in cases treated by other observers mentioned.

Oscar Jennings, of Le Vésinet, France, in a letter writes, that his first and only attempt at treatment of a case of opium habit with hyoscine was in 1888. He was unsuccessful; consequently he considered it too dangerous. After hearing of its success in America, he was prompted to use hyoscine upon himself. He took it by the method described below until he obtained the physiological effects. This forced him to conclude that the drug was not as dangerous as it first seemed.

Method Employed with Report of Cases.—In the drug cases the method employed has been the same as that described by Wagner, *i.e.*, hypodermic medication of from 48 to 72 hours' duration. The alcoholic cases were more favorable subjects, treated at their homes with competent attendants. The drugs were given by mouth during the first eight days, just enough to keep the throat dry and pupils dilated, as for example $\frac{1}{100}$ grain to $\frac{1}{50}$ grain hyoscine—$\frac{1}{500}$ grain atropine and $\frac{1}{60}$ to $\frac{1}{30}$ grain strychnine, every 2 to 4 hours. During the ninth and tenth days the hypodermic was used, pushing the treatment to the stage of mild delirium. In the alcoholic cases the delirium was of but two days' duration. The patients were males without abnormal physical findings.

Ten cases of the *liquor habit* were treated by this method. Four have not relapsed to date. The longest period of total abstinence after treatment is three years. Treatment for this case ended December 7, 1905. The other three patients have abstained, one for six months, the other two for nine months each. Of the six relapsed cases the shortest period before relapse was three months. Not one of these returned to the liquor habit because of the craving for drink, but simply to take one drink socially then let it alone. Thus the desire was created and they relapsed within four to ten months after treatment.

Ten Morphine Cases Treated by the Hyoscine Method.—For the privilege of reporting four of these cases I am indebted to Dr. Wagner, they were treated by him at the Cleveland City Hospital. As an example of the average course,

a detailed report of one case will be given, including bedside chart. This case is interesting from a surgical standpoint as well.

Mr. J., high-school principal, referred to me by Dr. F. C. Herrick, 34 years old had been addicted to the use of morphine for eight years, beginning in 1899 when it was administered to relieve the pain of gall-stone disease. Family history was negative. Physical examination was negative except moderate anæmia and slight tenderness on deep pressure over the gall-bladder. The urine was acid, specific gravity 1024, contained no sugar, no bile, nor albumin. The morphine taken had consisted of four grains per dose by hypodermic four times daily, making sixteen grains every 24 hours. An initial dose of calomel grains 3, followed by Rochelle salts one ounce, was given. Special nurse day and night during the first week. Regular hospital vigilance during the second week. Active treatment began June 2, 1908, at 4 P. M., when a single hypodermic was given, consisting of hyoscine hydrobromate, grain $\frac{1}{200}$; atropine, grain $\frac{1}{600}$ and strychnine, grain $\frac{1}{200}$, in distilled water. This was repeated every $1\frac{1}{2}$ hours for eight doses. Then one-half this dose was given for the six succeeding periods of $1\frac{1}{2}$ hours each. This was followed by twelve full doses at $1\frac{1}{2}$ hour intervals ending the active treatment with two half doses. The last hypodermic of hyoscine was given June fifth at 2.30 P.M. Altogether during the active treatment, which lasted sixty-nine hours, $\frac{1}{4}$ grain hyoscine, $\frac{1}{4}$ grain strychnine and $\frac{1}{24}$ grain atropine were administered. A copy of the bedside record is appended giving in detail the treatment and management. (See pages 592 and 593.)

After the first week patients as a rule eat heartily and sleep normally; the appetite becomes ravenous usually about the tenth day. Those who complain of insomnia may for one or two nights, after first four days' active treatment, be relieved by any suitable hypnotic: trional, grains 20, or chloral and bromides, of each grains 15, for one or two doses at bed time. There is no craving for the drug nor pain nor suffering from its withdrawal at any time during or after treatment. Occasionally one finds a patient who sleeps most of the time during the three days of active treatment. These should not be pushed to the stage of mild delirium described on the bedside record. This delirium referred to, should be carefully controlled since too large doses at this time will create a wild almost unmanageable delirium with attempts to crawl up the wall, etc. This, however, can be controlled at any time when the patient becomes unmanageable, by giving $\frac{1}{4}$ grain of morphine, which will not in any way interfere with the results of treatment.

In mild delirium, the delusions and illusions are altogether quite pleasant, leaving no bad effects. In this patient, who had been a soldier in the Spanish War, while looking intently at the figures on the wall paper, they suddenly became transformed into troops of marching soldiers. He would look at the chandelier watching turners' and acrobatic performances.

A quite common illusion is mistaking a white counterpane for black broadcloth which the patient is buying for his wife and children for clothing. Sometimes the sheet is torn into shreds in making endless yards of cloth for purchase.

A smoker will reach into space for his pipe which, when he is about to grasp it, suddenly disappears.

In looking out of the window, one of the men saw a tree which suddenly expanded into a beautiful park. He intended to walk out of the second story window into the park, with lakes and benches scattered here and there. He was easily dissuaded upon being asked to sit down on this bench (chair in the room). He did so still looking out into the tree when he whispered to me to watch a pair of lovers on yonder bench. He said at first they were sitting far apart, but now he was moving closer and closer with his arm about her waist. Here his delusions were stopped by suggesting that he was looking at a tree. "Only a tree?" "Yes, yes." "Why I saw them a minute ago, now they have vanished." The park and lovers disappeared as suddenly as they appeared. Others will walk about picking up rings, etc., from empty space and hiding them under the pillow.

This patient's delirium was very carefully adjusted, so that he was kept in bed most of the time, part of the time asleep some time answering his wife or talking to his daughter. Then again the nurse's white apron would bring about a conversation with the butcher.

At this stage too much hyoscine will make them wildly delirious. Walking about, sometimes jumping upon the window sill or table. This can be controlled by ¼ grain morphine, or if the pulse is good they can easily be led about the room and put back to bed. They are quite amenable to suggestions at this time and if watched, they will without the dose of morphine become quieter and more tractable within an hour or two. The effects of the drug disappearing entirely within 6 to 24 hours after treatment is discontinued. During this stage of active treatment, sneezing and vomiting occur very commonly.

Case of Opium Poisoning in Baby Three Months Old.—July 19, 1905, I was called at 5 A.M. to see a boy three months old. Examination showed pin point pupils with no reaction to light, lids half open; respiration four to six a minute and irregular, sometimes completely arrested for from 15 to 30 seconds; hands and lower extremities cold, skin and mucous membranes cyanotic. The evening before, the child's mother borrowed some soothing mixture from an accommodating neighbor. The boy seemed in severe pain, so she gave him a teaspoonful every little while, how often she could not recall, until the child was sound asleep. He slept all night. Parents tried unsuccessfully for an hour by slapping, shaking, hot and cold water baths, etc., to rouse him but the stupor became deeper. Shortly after my arrival, a hypodermic injection, containing strychnine grain $\frac{1}{1000}$, hyoscine grain $\frac{1}{1000}$ and atropine grain $\frac{1}{2000}$, was given. Two more doses were given fifteen minutes apart. Twenty minutes after the third dose pupils became larger with flushed cheeks. Thirty minutes later breathing was twenty times a minute. At this time teaspoonfuls of water were swallowed. The same medication was then continued by mouth for three days always watching for physiological effects. The necessity for continuing treatment for three days was shown when the child would fall into a deep sleep if the interval between doses was too long, especially during the

first 48 hours. This seemed to show that the effect of hyoscine disappears quite rapidly but that morphine is eliminated rather slowly. The text-books, I believe, coincide with this statement. The boy is at present living and in good health; now three and one-half years old.

Conclusions.—1. The hyoscine treatment will eliminate the desire of drug and alcohol habitués for these drugs, thus eliminating the element which prevents the patients abstaining by force of will power.

2. That having lost the desire they do very well without intoxicants or the drugs as shown by the increase in appetite, gain in flesh and their general improvement.

3. The question of relapse lies entirely in the sincerity and environment of the patient.

4. The favorable alcoholic addicts are those who earnestly desire to discontinue the use of intoxicants and are willing to change their mode of living and environment; but who cannot until relieved of the craving for liquor.

5. Relapse in both drug and liquor cases is not due to a desire nor suffering after the treatment, but to their curiosity to test the necessity of total abstinence, or to the temptations of social life.

6. That a single dose of the drug or drink of liquor, even after one year of total abstinence, is very apt to start the craving resulting in a condition which is no better than before treatment.

7. This method may prove a valuable treatment for apparently hopeless cases of opium poisoning. Interesting experiments along this line might be carried out.

8. The one contraindication for this treatment is the presence of Bright's disease.

9. That no case should be treated unless put to bed and watched by competent nurses day and night during the first week.

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CLINICAL CHART.—MR. J., HIGH SCHOOL PRINCIPAL.

Date	Hour	Temp.	Pulse	Resp	Medicine and Stimulant	Urine	Stool	Diet	Remarks
1908	P. M.								
June 2	2	98.6	88	20	Calomel, gr. iij. Rochelle salts, ℥j			Soft diet	℞ Hypo. Hyoscine, 1/200 gr. Strychnine, 1/200 gr. Atropine, 1/600 gr.
	3								Patient in bed
	4		64	19	℞ Hypo. *	℥vj			
	5		66						
	6	98.4	60	18	℞ Hypo.			Bread, butter and tea	Slept ½-hour
	7		68						Asleep
	7.30					℥v			Confused, restless
	8		68	20	℞ Hypo.				Nauseated
	9		66						Sleeping
	10		68						Sleeping
	11		86						Restless, vomited
	12	98	74	16					Vomited, restless
	A. M.								
June 3	12.30				℞ Hypo.			Water	
	1		72						Quiet
	2		78						Sleeping
	2.30				℞ Hpyo.				Sleeping
	3		70						Asleep
	4	97.6	76	16					Asleep
	5		78		℞ Hypo.				Nauseated
	6		78						Nauseated
	7		74						
	7.30				℞ Hypo.				
	8	98.6	72			℥viij			Nauseated, confused
	9		76						Mumbling
	9.30				℞ Hypo.				
	10		80		Enema soap and water		1		Evacuation large and hard
	11		76		℞ ½ Hypo.		1		Watery bowel evacuation
	12		78						Asleep
	P. M.								
	1		78		℞ ½ Hypo.				Sneezing
	1.30								Vomited
	2		80						
	2.30				℞ ½ Hypo.				
	3.30		78						Busy picking up imaginary objects
	4				℞ ½ Hypo.				
	5		88						Restless, speech disconnected
	6	101	80	22					Forgetful
	6.30				℞ ½ Hypo.				Talking; ideas disconnected
	7		80						
	8		80						Restless
	8.30				℞ ½ Hypo.				
	9		78						Nausea
	10	100.4	78	18					Sleeping
	10.30				℞ ½ Hypo.				Asleep
	11		86						
	P. M.								
June 4	12.30		80		℞ Hypo.	℥viij			Restless, confusion
	2		82						Slept ¾-hour
	2.30	100.8	78	22	℞ Hypo.				Restless, confused
	3		78					Water	
	4		82					Water	
	4.30				℞ Hypo.				Awake past two hours
	5		80						Busy picking up and reaching imaginary objects, pipe, cloth, etc.
	6		78						
	6.30				℞ Hypo.				
	7	100.7	74	24	Enema			Cereal	
	8		76			℥viij	1		Large, hard stool
	8.30				℞ Hypo.				
	9		80						
	10	100.4	74	26			1		Watery stool
	10.30				℞ Hypo.				
	11		86						Picking at bed clothes
	12		80						
	A. M.								

*The Composition of Hypo. is as follows: Atropine, 1/600 gr.; Hyoscine, 1/200 gr.; Strych. Sulph. 1/200 gr.

CLINICAL CHART.—(*Continued.*)

Date	Hour	Temp.	Pulse	Resp.	Medicine and Stimulant	Urine	Stool	Diet	Remarks
June 5	12.30				℞ ½ Hypo.				
	1		70						Restless, talking
	2		80						
	2.30				℞ ½ Hypo.				Quiet, but awake
	3		76						Restless
	4	100.4	72	24					Awake, quieter
	5		72		℞ ½ Hypo.				Restless, wall-paper looks to him like marching soldiers
	6		70						
	7		74		℞ ½ Hypo.	℥vij	1		
	7.30							Cereal, toast, coffee	
	8	100.4	72	24	Enema.		1		Watery stool
	9		80		℞ ½ Hypo.		1		
	10		82						Restless
	11		74		℞ ½ Hypo.				
	12		76					Custard, tea	
	P. M.								
	1		78		℞ Hypo. discontin'd				
	2		70						
	3		74						
	4		74						More rational
	5		72						Vomited small amount
	5							Milk-toast, pineapple, tea	
	6		74						Becoming more rational
									At times still talking nonsense
	7	101.2	74	22		℥viij	1		
	8.30		72						Slept 1½ hours
	9.30		74						Sleeping
	11.45				Citrate Magnesium				Sleeping
	A. M.								
June 6	2.30		68						Sleeping
	5		64						Asleep most of the time during night
	6	99.4	62	22		x	1		Now quite rational
	7.30							Cereal, toast, coffee, bacon	Feels tired and weak
	8.30				Sponge bath, shaved				
	9		52						
	10.30	99	62	22			1	Milk, ℥v	
	12							Broth, custard	
	P. M.								
	3					x	1		
	6	99.4	66	20			1	Custard, bread, tea	Comfortable all afternoon
	9					℥viij	1		
	11	98.4	66	20	Alcohol rub				Had 1 hour of sleep
	A. M.								
June 7	2					x	1		Slept 1 hour
	6								Sleeping 2 to 4 A. M
	7				Sponge bath, massage		1	Cereal, toast, tea	Did not sleep well during night
	10.30							Milk, ℥viij	
	12.30	99	66	18					
	P. M.								
	1							Chicken broth	
	2					1	1	Chicken, potato, bread, tea	
	4							Milk, ℥vj	
	5.30	99	70	18					¾-hour sleep this P. M.
	8.30				℥j Bromides, chloral				
	10				℥j Bromides, chloral	x	1		
	A. M.								
June 8	6								Slept well through night

Regular hospital vigilance during second week with full tray and nourishment between meals

June 16 Discharged in good condition.

A CASE OF NEUROMA OF THE ORBIT.*

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Under the general head "Neuroma" are included all kinds of tumors which originate in or on a nerve trunk and which are composed, at least in part, of nerve tissue. In his large dictionary, Gould says the neuromata are, in most cases, really fibromata and this opinion seems to be borne out by the remarkable rarity of instances of true neuroma of the orbit or those tumors, the distinguishing elements of which are nerve fibers hyperplastic and degenerated. The neuroma-like tumors, on the other hand, the plexiform, the fibrous, the myxoma, ganglionic, gliomatous and others, contain in addition to hyperplastic nerve fibers, the characteristic structure in much greater proportion. The great variation in the microscopic elements of nerve tumors has led to some confusion among writers in describing cases under their observation. Parsons[1] says, "Simple neuroma of the orbit has been seldom described, probably owing to their small size and to the absence of symptoms," and Parker[2], as a result of his search through literature, "Cases of neuro-fibromata (pseudo-neuromata, solitary neuromata) of the orbit are extremely rare, there being but two cases on record. Of these, one reported by Tertsch involved the lacrimal branch and one reported by Marchetti, the infraorbital branch of the fifth nerve." Both these writers are quoted by Parsons. Under the heading "Plexiform Neuroma," Parsons records a number of cases of modified forms of neuromata of the appendages of the eye and orbit. Parker quotes Tertsch in his contention of the extreme rarity of neuro-fibromata of the orbit: "A solitary neuroma is altogether a rare tumor and its location in the orbit appears at least a curiosity." Dr. Edward Jackson, in his discussion of Dr. Parker's paper, well expressed the situation by stating that the term neuro-fibroma has been used so loosely that its significance is uncertain and indefinite. Dr. Parker's case and the two he cited should probably be classed as true neuromas, of which the tumors developed on the ends of nerves after amputation of a limb are the most common examples.

It is difficult to explain the scarcity of reports of instances of neuroma of the orbit. Surely the small size of the tumors and the absence of symptoms is an inadequate assumption. If neuroma of the orbit may be compared with neuroma after amputation of a limb, and I think the comparison is a proper one, the comparison should extend beyond the histologic characteristics and should include the symptoms. It is well known that neuroma after amputation is an excessively painful affection. Gross in the second volume of his

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* Read before the Section on Ophthalmology, College of Physicians, Philadelphia, Feb. 20, 1908.

1 "Pathology of the Eye," Vol. II.

2 Trans. Sect. Ophthal. American Medical Association, 1907.

surgery, as long ago as 1872, wrote, "The tumor which sometimes attains the size of a hickory nut or even of a pullet's egg is of a firm dense consistence and is composed of a strong fibrous stroma inlaid with hypertrophied and curiously interlaced nervous trunks and filaments. It is, in fact, a true neuroma. The accompanying pain is exquisite and the part is so sensitive as to be intolerant of the slightest touch." Neuroma of the ciliary nerves or of the supraorbital branch of the fifth nerve after enucleation of the ball or exenteration of the orbit would be a condition analogous to that of the sensitive nerve trunks after amputation. Bietti[3] has described amputation neuromata of the ciliary nerves after opticociliary neurotomy. It is a matter for surprise that other cases following other operations involving section of the nerves have not been recognized and reported. In my own experience I do not recall a single case and I am sure that if they were at all common I should have met with and remembered them.

Miss N. J. was admitted to a hospital in Providence, R. I., January, 1904. (For the notes relative to this patient before she consulted me I am indebted to Dr. Neill, of Providence.) She was a robust and an apparently healthy girl. She had suffered moderately with rheumatism and considerably with headache and neuralgia. One week before admission she complained of severe pain in the left eye and the left side of the head, followed by œdema of the lids, exophthalmos, destruction of vision and orbital abscess. Several incisions were made into the orbit and necrosis of the upper outer wall discovered. The incisions gave vent to a serous discharge which continued up to her admission into the hospital. Enucleation was performed and a large drain inserted into the incision in the supraorbital region. On February 9th, the discharge had ceased and the patient left the hospital. Both lids were firmly bound down by adhesions. Five days later she was re-admitted, complaining of intense pain in the left side of the head and occiput, nausea and vomiting. Under ether the orbit was found to be filled with dense cicatricial bands and adhesions and the soft bone on the roof was curetted away. Hæmorrhage was very free. Gradually the sinus became closed and the discharge ceased. Curettement again became necessary in June, when many small fragments were removed with but little permanent improvement. In January she was again re-admitted. Since the last operation, eighteen months ago, she has had constant pain in and about the orbit. The lids are shrunken and the cavity of the orbit greatly reduced in size. Operations to restore the orbit induced erysipelatous inflammation of the left side of the face and purulent discharge from the orbit. Under treatment the symptoms subsided and she was discharged in two weeks. On March 2, 1907, she came under my care, stating that for the past year she had had frequent and intense paroxysms of pain which were relieved only by one-half grain of morphia. She was emaciated, pale, easily exhausted and gave every evidence by her appearance of indescribable suffering. The soft tissues of the orbit were contracted and cicatricial. Light pressure against the roof of the orbit gave rise to acute pain and imparted to the examin-

[3] Arch. f. Ophth., XLIX, 1900.

ing finger the sensation of a small node. Dr. J. Chalmers DaCosta confirmed the opinion that the supraorbital nerve was caught in the scar and advised its removal. Under ether an incision was made in the upper lid and the tissues of the roof of the orbit separated. The nerve was readily found and dissected out thoroughly from the orbital margin to the apex of the orbit. About its center was an oval swelling the size of a bean, similar in color and, apparently, in texture to the nerve, and corresponding in position to the sensitive point. No other swellings on the nerve were found. The patient made a speedy recovery. Until August, five months later, she was entirely relieved of pain. Soreness, reflected pain and sensitiveness to pressure were no longer felt. She had regained her health and had added thirty pounds to her weight. From August, 1907, to January, 1908, she had recurrences of neuralgia, every week or two weeks, of moderate severity coming on without assignable cause other than changes in the weather. Believing that a filament of a sensitive nerve was entangled in the cicatrix, I exsected a portion of the cicatricial tissue at the roof of the orbit and transplanted a graft of skin taken from the inner aspect of the thigh. Healing proceeded without interruption. The patient has had no pain up to the present. Only a month has elapsed and the future is of course uncertain.

The specimen was unfortunately lost, so that no microscopic examination of the tumor was made. The physical features and the symptoms were characteristic of neuroma, and, while microscopic confirmation of the clinical diagnosis would have been valuable, the nature of the tumor seems to be fairly well established.

THE ADRENALS IN SUDDEN DEATH.

By CHARLES E. de M. SAJOUS, M.D., LL.D.,
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Notwithstanding the marked attention that the adrenals have received in recent years, text-books of practice give the disorders of these organs but scant attention. Practically all refer only to their main syndrome, Addison's disease, thus conveying the impression that this morbid process represents the whole of adrenal pathology. It were as true to say that pulmonary tuberculosis is the sole disease to which the lungs are liable. Close observation has clearly shown during the last two decades that the adrenals are not only, as are the lungs, the seat of disorders—functional, inflammatory, degenerative, hypertrophic, infectious and neoplastic—quite as numerous as any other organ, but that owing to the friability of their cellular elements, and their intimate relationship with the large and deep arterial trunks, they are readily destroyed when the arterial tension exceeds a certain limit. All disorders of the adrenals are conveniently said to be rare; nearer the truth would be the admission that they are still rarely recognized. This assumes special importance because of the fact that many of these disorders entail prompt and often sudden death either as a result of hæmorrhage into the organ, or of rupture of the latter and hæmorrhage into the peritoneal cavity.

In adults, adrenal hæmorrhage or "adrenal apoplexy" as Arnaud has termed it, occurs most frequently in subjects between twenty and thirty years of age. The attack is sudden, as a rule, or it may be preceded by a period of great lassitude or asthenia. In most instances, however, the symptoms are such as to suggest acute intoxication or infection. There is very severe pain either in the epigastrium, the abdomen or below the costal margin, soon followed in most instances by incoercible vomiting and diarrhœa, very weak pulse, a rapid fall of the blood-pressure and temperature, cold sweats, coldness of the extremities, and lethal coma. In some cases the patient passes into a typhoid state with delirium, and occasionally, convulsions, the skin assuming a yellowish or brownish hue. In a series of 80 cases collected by Arnaud (1900) death occurred within a period ranging from a few hours to three days.

In the infant, especially the newborn, death occurs, in some instances, without appreciable preliminary symptom, except perhaps a hæmorrhagic rash, or purpura, over the entire body, and a high temperature. As a rule, however, there are besides, diarrhœa with melæna, very acute abdominal pain, hæmatemesis, and more or less icterus, all soon followed by collapse, hypothermia, cyanosis, lividity and death. In a third class of cases, the whole morbid process may be asthenic from the start: there is a history of emaciation with increasing weakness, a feeble and rapid pulse, shallow respiration with, perhaps, bronchial rhonchi, duskiness of the face and even cyanosis and hypothermia, which end promptly in collapse and death.

With the prevailing view that the adrenal secretion causes a rise of the blood-pressure by acting directly on the cardiac and vascular muscles, this *pot pourri* of symptoms cannot be explained, many, in fact, being antagonistic. But such is not the case, when my own conception of the functions of the adrenals is taken into account. As I pointed out in 1903[1] the adrenals supply a secretion which, on reaching the lungs, becomes converted into the constituent of the hæmoglobin which sustains oxidation, *i.e.*, general metabolism and nutrition. The increase of blood-pressure and muscular tone that Oliver and Schäfer found to be produced by adrenal extracts and also by the adrenal secretion, are but secondary results of these functions since it is by increasing metabolism in the muscles that they increase their tone. As this applies to the musculature of the heart and blood-vessels, the vigor of the cardio-vascular contractions and the general blood-pressure are correspondingly increased.

Important also, in the present connection, is that products of metabolism and many other poisons, as shown by various investigators, cause congestion of the adrenals in some obscure manner. From my viewpoint this is because these various toxics excite either the vasomotor center or the adrenal center, or both these co-ordinating structures. As the resulting vascular contraction forces an excess of blood into all capillaries, the adrenals, which are exceedingly rich in vascular channels, become congested. From this condition to hæmor-

1 "Internal Secretions and the Principles of Medicine," Vol. I.

rhage into the adrenals or rupture of these organs and external hæmorrhage there is but a step, since, as already stated, the adrenal tissues are very friable while they receive their blood from the great arterial trunks in their immediate neighborhood.

The morbid processes which can thus bring on early or sudden death through adrenal hæmorrhage may be divided into several types:—

Type 1. *Infantile Toxæmia.* An infant a few months old and in perfect health, suddenly shows high fever with or without purpura. After a few hours, diarrhœa, vomiting and abdominal pain appear, followed soon after by convulsions, a weak and rapid pulse, cyanosis and coldness of the extremities. Death takes place from six to twenty-four hours after the onset of the symptoms. Loeper and Oppenheim,[2] who refer to a number of such cases reported by Talbot, Blaker and Bailey, Andrewes and others, state in this connection that "in every case no lesion other than a more or less voluminous hæmorrhage in the adrenals was to be found," while the blood examined during life was found to contain, in several instances, the streptococcus pyogenes. Andrewes[3] considers that "we have clearly to do with an infective process"—a conclusion amply sustained clinically and experimentally.

Explained in the light of my own views, outlined above, the bacterial toxins or other toxics that happened in the blood, awakened the *sthenic stage* of the morbid process; in other words, they excited both the vasomotor and adrenal centers. The excess of adrenal secretion produced caused not only increased oxidation—thus explaining the fever—but also a rise of blood-pressure, and, as a result, such marked vascular tension that the capillaries of all organs became intensely hyperæmic. The skin showed this by hæmorrhagic spots, or purpura (accompanied in some instances by hæmatemesis and bloody stools); the gastro-intestinal canal by the vomiting, the diarrhœa, and the abdominal pain; the cerebro-spinal system by the convulsions. The adrenals, doubly congested as it were, through the excess of arterial blood in them incident upon supernormal activity and the blood driven into them by the contracted arteries, stood the stress for a time; but finally, their capillaries yielded, flooding the glandular parenchyma. This inaugurated the *asthenic stage,* the functions of the adrenals being paralyzed. The production of their secretion ceasing, the cardiac and vascular contractions gradually lost their tone and the pulse became weak and rapid; oxygenation being also prevented, cyanosis and coldness of the surface appeared and death soon followed.

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2 "Manuel des Maladies des Reins et des Capsules Surrénales." By Debove, Archard, and others, 1906.

3 Pathological Society Reports, 1898.

(To be concluded in the next issue.)

Editorial

THE EARLY TREATMENT OF INSANITY.

The general practitioner is very generally awakening to the importance of recognizing the earliest indications of such disorders and now realizes how much depends upon him, as the one who is brought most directly in contact with the patient in this stage. It is also known that early removal to new surroundings, and under the supervision of experts, will give those afflicted with nervous troubles the greater hope of permanent recovery, and lessen the number who will require to be certified as insane and maintained at asylums.

The Ontario government has been induced to give special attention to this subject. It appointed a commission of physicians to inquire into the methods abroad, and, upon this recommendation, are to erect a special clinic in Toronto for such cases. Patients will be admitted from all parts of the province. There will be public and private wards, outdoor departments, and laboratories. It will be equipped with all modern methods of examination and treatment. Each department under the charge of competent heads. Later, it is intended to extend the system to other cities of the province.

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Cyclopædia of Current Literature

CANCER IN MAN AND ANIMALS.

The liability of all races of mankind and of all vertebrates to cancer has been established, and the experimental reproduction of carcinoma and sarcoma has become a routine laboratory procedure. This has put the investigation of cancer on a sound biologic and experimental basis, and rapid progress has been made in defining the nature of the disease. It is found that cancer is as frequent in India as in England. The Hindoos are vegetarians, but the disease occurs irrespective of vegetarian diet. It also occurs in savage, as well as in civilized races; yet there is no indication of any epidemic character of the disease among savage races. The commission has shown that cancer may be reproduced experimentally by innoculation. All the clinical and pathologic features of cancer were produced in animals by cell proliferation from a few cells introduced. It is now agreed that infection plays no part in the experimental transference of cancer; that it is a true transplantation of living cells. In animals, as well as man, cancer is associated with certain periods of life, being frequent as age advances.

In studying the increase of cancer, the author states that it is found that savage nations are not suited for this investigation because of the absence of reliable vital statistics. The increase in the number of deaths from cancer in any country is not actual, but is parallel with increased accuracy in vital statistics. Statistics from hospital and from cancer censuses are fallacious, according to the

writer, owing to inaccurate diagnosis and other causes. There is an increase in the number of recorded cases, but this is probably not a real increase, but only an increase of records. The relative incidence of cancer on different parts of the body shows a large number invading the stomach; among females the generative and mammary organs are involved in two-fifths of fatal cases, and another two-fifths involve stomach, liver, intestines and rectum. In man they are more frequent in throat, mouth, stomach and rectum. This may be due to chronic irritation of these sites from difference in habits. The sites of predilection show the existence of endogenous factors aside from irritation, that is, innate peculiarities of the organs involved. The incidence of cancer at certain sites in different races is due to habit, and determined by external irritation. Any part of the normal covering of the body may acquire cancerous properties. This has an indirect significance only.

The question of heredity is not yet settled, and many facts are opposed to the congenital origin of cancers. The cancer cells are not of embryonic nature, but highly specialized. Cancer has no analogy with any form of infective disease. In the laboratory where thousands of mice have cancer neither they nor the laboratory workers, asserts the writer, have ever been known to take it. In animals there is no evidence of production by cancer of toxic products. Death is not due to these, but to the growth of the tumor and its nutrition. Cystic changes in the growth of the cancer are shown. Exacerbations of growth occur, alternating with periods of slow growth. Some parts grow slowly, others rapidly. The nature of immunity in cancer is not yet fully known. E. F. Bashford (Medical Record, September 4, 1909).

CHOLERA, TREATMENT OF.

The great value of a large injection of morphine, in cholera, immediately the disease is suspected, is emphasized by the writer. He reports a number of cases of bad collapses, in all of which from 2 to 10 pints of saline solution were infused intravenously. The pulse instead of being quite impalpable, became full, strong and quiet, being at its acme by the time 3 pints had been infused, whereas twenty minutes previously the heart was beating at a rate of from 140 to 170, as recognized by the stethoscope. The face became fuller, and the awful sunken look to a large extent disappeared. Restlessness became less, the intelligence became brighter, the skin became warm. The author suggests that the poison of cholera attacks principally, or perhaps only, the vasomotor system, that the heart is not at fault, that the abdominal veins are holding most of the blood in the body, and that the treatment in this condition should be that of shock. He further noticed in a number of cases that if persons sleep after an injection of ½ or ⅓ grain of morphine their chances of recovery are good; that morphine does not induce sleep in those patients who are badly collapsed, but only stops the diarrhœa and vomiting. R. W. Burkitt (Journal of Tropical Medicine and Hygiene, July 15, 1909).

DIABETES MELLITUS, EFFECT OF CERTAIN DRUGS ON.

The primary object of the author's clinical observations was to ascertain the effects of opium, or its alkaloid codein, on various symptoms of diabetes mellitus; in what respect, if any, the crude drug differed from the alkaloid in action; and whether such effects varied with the dose given. For this purpose a series of nine cases of ordinary dia-

betes were placed, so far as possible, under similar conditions. Codein was given in seven cases, always in the form of a pill. As a rule, the initial dose was $^1/_4$ grain, thrice daily, which was gradually increased, at varying intervals, by $^1/_4$ grain to the dose, or by larger amounts, until as much as twelve grains was being taken daily. On the whole, the definite results obtained in these cases are disappointing. Possibly the doses given were altogether too small. This does not seem an adequate explanation, however, as in more than one case the results have appeared to become less favorable with increased doses. On the other hand, in a certain small number of cases the effects of gradually increased doses have been favorable, even over several weeks. It may be said that inasmuch as codein will quickly lose its first sedative effect, it can only be of value for a short period.

Opium, either in the form of pilula opii or of pilula saponis comp., was given in six cases. In three of these it was tried before any other drug, while in three other cases it was given to patients who had previously taken codein, in order that the effects of the two alkaloids might be compared in the same individuals. The initial dose given varied from $^1/_5$ to 1 grain, thrice daily, and was usually increased gradually, in one case up to 12 grains daily. In spite of the fact that one of the patients became worse and died while under treatment by opium, the general results obtained with it were, on the whole, rather more uniformly successful than those obtained with codein. In three cases codein had previously been tried, and comparing the results, one sees that opium began to act effectively when codein in increasing doses had ceased to do so. A. J. Hall (Quarterly Journal of Medicine, July, 1909).

ENLARGEMENT OF THE PROSTATE, ETIOLOGY OF.

Enlargement of the prostate is the result of a chronic inflammation, the inflammatory foci lying around the mouths of the excretory ducts and thus causing stenosis or occlusion of these ducts with retention of the catarrhal secretion, dilatation and cystic degeneration, the process and results similar to those of retention in any glandular organ. The chronic prostatitis in question is a very long drawn out process, extending over years and decades, and it may be not only clinically latent, but the naked eye may be unable to detect histologic changes in the gland. The microscope, however, will reveal the signs of submucous chronic inflammation in the posterior urethra, and of catarrhal proliferation and desquamation of the epithelium in the follicular pouches and outlets of the prostate. Some prostates contain less glandular substance than others, and the effect of the inflammation is felt less on this account.

The findings reported confirm the lack of any rational basis for treatment of enlargement of the prostate by castration or severing of the *vas deferens* or ligation of afferent arteries—all of which are now abandoned. But the anatomic findings suggest the importance of systematic treatment of chronic prostatitis in prophylaxis of hypertrophy of the organ. This is the task of the general practitioner, and he should not fail to institute a three or four weeks' course of massage two or three times a year for several years after subsidence of the acute phase of prostatitis. This will counteract the stagnation of the secretions and development of deposits of

round cells at different points, while it will promote the circulation through the blood vessels and lymphatics and favor absorption of inflammatory infiltrates. Of course, after fibrous connective tissue processes have developed, massage is no longer effectual. It may be usefully supplemented by other measures to promote absorption, such as brine and mud baths, etc. Rothschild (Berliner klinische Wochenschrift, July 5, 1909).

EXOPHTHALMIC GOITER AND DIABETES.

Attention was drawn by the writer to the relationship between the thyroid gland and the pancreas by a group of four cases which came under his observation, in which exophthalmic goiter was accompanied or succeeded by a severe form of diabetes. One patient recovered from a typical attack of exophthalmic goiter, which was, however, followed by a severe form of pancreatic diabetes, to which she succumbed. The disappearance of the exophthalmic goiter was evidently due to the return of the thyroid to a normal condition, and is an interesting example of how complete this recovery of the gland may be. The diabetes was the result of the destruction of the islands of Langerhans. When a second patient first came under observation she was suffering from exophthalmic goiter without glycosuria, whereas three years later she had practically recovered from exophthalmic goiter, but was suffering from a severe form of diabetes. A third patient with exophthalmic goiter, who apparently recovered, relapsed on taking thyroid tablets, the second attack persisting and becoming complicated by the development of composite diabetes. The fourth case illustrates the development of diabetes nearly eleven years after the onset of exophthalmic goiter. In all these cases, one patient being a man and three, women, severe diabetes developed at a variable interval after the disease had either subsided or decreased considerably by the time the diabetes had declared itself. G. R. Murray (Clinical Journal, July 28, 1909).

ILEUS, TREATMENT OF.

As a result of experiments with animals, to determine the most decisive factors in the fatalities from ileus, the writers show that autointoxication and reflex action are comparatively unimportant factors. The disturbances are the result of interference with the functioning of the intestines and with the circulation in the abdominal cavity. The heart is not primarily involved with ileus in the small intestine, unless the clinical picture is complicated by infection. Otherwise, in animals, as in man, the normal heart continues to work continually and powerfully to the very last. At first the intestine above the occlusion increases in size, fills up with intestinal juice in nine hours, with an amount corresponding to the total quantity of blood in the animal. All the intestinal vessels are gorged with blood, and the intestine above the obstruction is in extreme peristaltic excitement, accompanied by exaggerated secretion of pancreatic and intestinal juice and bile. These views emphasize the necessity in ileus for measures to tranquilize the intestine and regulate the circulation. Opium may accomplish the former, and saline infusion the latter, possibly supplemented by a suprarenal preparation. W. Braun and H. Boruttau (Deutsche medizinische Wochenschrift, August 12, 1909; Journal American Medical Association, September 18, 1909).

INFANTILE ANÆMIA, PREVENTION OF.

The writer refers to the anæmia without appreciable cause, and experience has convinced him that these anæmic infants are suffering from lack of iron. This form of anæmia is more common in families in which the infants are allowed nothing but milk, while it is rare when the children early eat at the family table. He does not give iron directly, but during or after the third month allows once a day a little meat broth with one-half and later the whole yolk of an egg. During the fourth and fifth months gruel is given once or twice a day, made of zwieback, with butter, milk, salt and sugar, to which the egg yolk is added. By the sixth or ninth month he gives spinach; by the tenth and eleventh month a little meat. When the child is a year old he reduces the milk to a pint or a pint and one-half a day, and accustoms the child to a mixed diet. By this means, the anæmia is prevented, and always cured when developed. Infants seem to feel the need of iron mostly in the fourth month, and by giving them in this way a little food that contains iron, it is possible to keep the hæmoglobin at 100 per cent. The children take this diet without disturbance. Yolk of egg and spinach contain 22 and 35 mg. iron in 100 Gm. of dry substance, while cow's milk contains only 2.3 mg. The writer thinks it is not a mere coincidence that none of the children given iron in this way has ever developed rachitis. Milk does not contain enough iron for the proper development of the infant, and sooner or later the child will suffer, especially about the fourth or sixth month, at which time a little mixed food containing iron is given whether the child is getting breast milk or is bottle-fed. J. Katzenstein (Münchener medizinische Wochenschrift, August 10, 1909; Journal American Medical Association, September 18, 1909).

IVY POISONING.

In the treatment of ivy poisoning, the writer suggests the following method: No scratching; no ointments in the acute stage; no bandages, for these tend to spread the poison to adjacent surfaces; if any protector is necessary, it should be a loosely applied dressing of absorbent cotton, kept moist at all times and changed at short intervals; frequent and copious washings with lukewarm water and an unirritating soap; in handling the inflamed surface it is best to wear rubber gloves; after the parts are washed, a 2 to 4 per cent. warm solution of permanganate of potassium should be applied. This completely neutralizes any poison with which it comes in contact; the strength of the solution and the frequency of application are matters of judgment with the physician after the acute stage is past; ointments are permissible. A. W. Baird (Medical Record, August 7, 1909).

LATENT MALARIA, DIAGNOSIS OF.

Three phases of latent malaria are distinguished by the author, the first lasting from the time of infection until the onset of fever; the second is the afebrile stage between the paroxysms, and the third phase begins after disappearance of parasites and stippling from the blood. The first phase ordinarily is short, but in those taking prophylactic treatment it may last many months, and the fever may not come at all. The symptoms are nervousness and digestive disturbances associated with more or less anæmia. This symptom complex was formerly believed to be a manifestation of acclimatization. In this stage, the

red cells show a form of stippling peculiar to parasitic diseases. It persists until the beginning of the third stage. Particularly after energetic quinine treatment, pigment from the red cells may be found in the leucocytes, but it is seen most frequently in the large mononuclear basophile. Special stress is laid on the importance of urobilinuria for the diagnosis of latent malaria in the third phase. It may begin in the first phase, and in the later stages it is constant until after the beginning of the third phase, when it may be the only sign of the disease. When urobilinuria from complicating diseases can be ruled out, the writer believes that, following known malarial infection, it indicates the persistance of degenerative changes of the organs. Plehn (Münchener medizinische Wochenschrift, August 24, 1909; Boston Medical and Surgical Journal, September 23, 1909).

OPHTHALMIA NEONATORUM.

As the result of an investigation by the writer, he has found that blindness due to the infectious diseases sums up to a total of 62 cases, or 20 per cent., due to scarlet fever, measles, mumps, cerebrospinal meningitis, typhoid, smallpox and trachoma. School inspection is the greatest safeguard against all of these. No civilized community ought to expose its school children to the ravages of the infections, when regular and systematic examination of all children at school, by competent physicians, will lead to the early detection of a contagious disease in a child. When isolation of a child with scarlet fever or measles follows at once, when all the other children in that family, or even those living under the same roof, are isolated and not allowed to return to school until the danger of contagion is past, when fumigation of the schoolroom follows every time infection is detected, just to that degree are the dangers of an epidemic averted. Twelve cases (4.02 per cent.) were due to near-sightedness, high degrees of myopia. This condition can likewise be ameliorated by the proper lighting of schoolrooms, seeing that the light falls from the proper direction; the character of the type used in school books, and the proper adjustment of desks and chairs.

Methyl or wood alcohol has been the cause of blindness in three (possibly four cases), as the result of inhalation. Hundreds have died from drinking it. Its sale should be made a felony, since denatured alcohol (which contains but 2 per cent. of wood alcohol) can be used for everything for which wood alcohol is now used, and the dangers are greatly minimized. Lead poison caused four cases of blindness. These two causes are responsible for 2.62 per cent. of cases of blindness. In a total of 175 cases, equal to 58.90 per cent., the causes could justly be considered as preventable. L. Stricker (Ohio State Medical Journal, August, 1909).

PERITONITIS, ADRENALIN-SALINE INFUSION IN.

Extensive experimental and clinical researches are reported by the writer, which demonstrate, he thinks, that the main effect of the infusion is due to the salt solution, and that this is more prominent in the cases in which the patient has just lost large amounts of fluid. The effect of the adrenalin is so transient that it can be of little use in peritonitis; its chief field is in collapse, transient in its nature, as in general anæsthesia and spinal anæsthesia; in shock after severe operations and injuries; in hæmorrhage; and possibly, also in intoxications and in

threatening conditions during infectious diseases. H. Heineke (Archiv für klinische Chirurgie, Bd. xc., Nu. 1, 1909).

PNEUMONIA, STROPHANTHIN IN COLLAPSE IN.

Five cases of pneumonia are reported by the writer, which show that in certain cases of collapse, due to cardiac weakness, the physician has in strophanthin a drug which will act promptly and powerfully and enable the patient to rally, and the heart to resume its work. The large amounts of urine which have been passed by these patients, which are much greater than the ordinary diuresis following the crisis of a pneumonia, make it seem that the strophanthin has also to do with the production of what Meltzer has called the "life giving diuresis," by means of which the toxic products are more rapidly eliminated than would otherwise be the case. When a patient has grown weaker and weaker in the course of his disease, whether it be pneumonia or typhoid fever, the cardiac stimulant of the strophanthin will apparently have little effect upon the gradually flagging heart action. A. K. Stone (Boston Medical and Surgical Journal, August 19, 1909).

RHEUMATISM OF THE HEART.

The main factor in the production of mitral incompetence early in rheumatism, is a loss of tone in the mitral sphincter. The pathologic reason for such loss of tone is the development, especially near the mitral ring and near the root of the aorta, of inflammatory nodules. In such nodules toxins would be elaborated (whether formic acid or others) and the lymph of the part would contain these toxins. Hence, the muscle fibers of the mitral sphincter would be bathed in toxins, the special action of which is to diminish tonicity, while the rest of the cardiac muscle would be much less severely poisoned since the toxins must be absorbed into the general circulation in order to reach any fibers that are not in close proximity to the nodules. Thus, in any rheumatic myocarditis, an early loss of tone in the sphincter of the mitral valve would be expected with the development of a regurgitant murmur. Nodules tend also to form near the root of the aorta; but the aorta has no sphincter and so no change is produced during an attack of rheumatic fever. There is also heard at the apex a murmur diastolic in time, soft and blowing in character, only temporary, which seems to have nothing to do with the development of a genuine stenosis of the valve. Death in a first attack of rheumatism is very uncommon, apart from hyperpyrexia, but a fresh attack may fatally affect the heart that is already damaged by valvular disease or pericardial adhesions, or the muscle of which has previously been injured by poisoning or inflammation. The lesions of rheumatic myocarditis are in themselves insufficient to lead to a fatal issue, and the main factor in the production of a fatal cardiac failure seems to be the action of the toxin on the muscle cells.

Affections of the myocardium in rheumatism may be divided into the inflammatory and the toxic. Inflammatory lesions cause a loss of tone in the muscle which surrounds the mitral valve, allowing of mitral regurgitation. Thus an apical systolic murmur is the sign of rheumatic myocarditis, and is, indeed, the only sign of inflammation of the heart, apart from pericarditis. In the majority of cases the presence of such a systolic bruit is diagnostic of myocarditis, but in a small minority a regurgitant murmur may result from

general dilatation without any inflammation. Poisoning of the heart muscle in rheumatism causes a general dilatation of the heart, and sometimes a mitral diastolic murmur. Dilatation may or may not be associated with inflammation of the myocardium, but the diastolic murmur may be taken to imply an absence of myocarditis at the time it is heard. So far as the immediate welfare of the patient is concerned, the toxic action of rheumatism is more important than the inflammatory, since it is to the consequent failure of tonicity and contractility that death during an attack is due. Myocarditis is probably always associated with endocarditis, so that there is danger of permanent damage to a valve, and the inflammation in the muscle itself may lead to such local damage that tone is never regained, leaving a permanent widening of the orifice. It is probable that the muscle may sometimes completely recover both from the poisoning and the inflammation, but in other cases the muscles never again become healthy. A. M. Gossage (Lancet, August 21, 1909).

SENILE EPILEPSY.

The pathology of the various forms of syncopal, vertiginous, and epileptiform seizures which occur for the first time in advanced life, is summarized by the writer as follows: Idiopathic epilepsy never arises for the first time in advanced life. At least nine-tenths of these syncopal, vertiginous, and epileptiform seizures are circulatory in origin. Senile syncope is generally due to cardiac failure and low blood-pressure. Senile vertigo and similar head sensations (postural vertigo, interruptions of thought, etc.) are due to the disturbances of the regulator mechanism of the arteries in different parts of the body owing to arterial hypermyotrophy or other arterial disease, not necessarily accompanied, so far as his observations go, by any notable alteration of the general blood pressure or of cardiac increase or diminution. Senile epilepsy (convulsive attacks) is generally due to increased blood-pressure with cardioarterial hypermyotrophy. All these attacks of senile syncope, senile vertigo, and senile epilepsy merge into and are associated one with the other; vertigo may occur at one time, convulsions at another, and the same patient may in the end die from syncope (when the heart is defeated.)

The treatment of epileptiform and other like seizures occurring for the first time in advanced life follows naturally from the preceding remarks. Having investigated the other possible causes, the main thing is to concentrate attention on the circulation—examine the heart, the arteries, and above all (from the point of view of treatment) the blood-pressure. Then we must be guided by what we find to administer treatment to raise or lower blood-pressure, and to tone or steady the heart. T. D. Savill (Lancet, July 17, 1909).

SUPRARENAL INSUFFICIENCY.

The syndrome of suprarenal insufficiency may be slow or acute. In the chronic form, of which Addison's disease is the extreme type if there is no bronzing, it can be rendered manifest by applying a mustard plaster which draws the pigment to the surface. The tuberculous process in the suprarenals in this disease is almost always primary, and these glands are rarely affected even with advanced tuberculosis in other organs. Without the bronzing, the syndrome suggests pernicious anæmia, leukæmia or latent cancer, especially the weakness, the low blood-pressure, the

loss of appetite, the constipation, vomiting, anæmia, and progressive emaciation.

The acute form may simulate a fulminating poisoning, peritonitis, meningitis, apoplectiform coma, etc., and it may be suspected when the febrile and other phenomena of an infectious disease are suddenly supplanted by signs of depression, small, unstable pulse, subnormal temperature and arterial tension. The writer is convinced that the "white line" is pathognomonic of suprarenal insufficiency and it may prove very instructive in cases of sudden death from this cause in which circumstances indicate possible poisoning or violence. Besides trauma, an operation or even a pregnancy may bring on this acute insufficiency on the part of the suprarenals.

Treatment should aim to prevent the development of the acute phase or exacerbations in persons already affected with the chronic form. They should avoid exertions and contact with persons suffering from infectious diseases and should refrain from toxic drugs, especially from arsenic, which is a violent poison in cases of suprarenal insufficiency, and they should not permit any surgical operations unless for vital necessity. On the other hand they will derive benefit from phosphates and especially from lecithin. Antisyphilitic treatment should be instituted if there is a possibility of a syphilitic origin, but the mercury and iodid must be managed with great care as they are liable to prove poisonous for the suprarenal capsule. Suprarenal organotherapy is useful both for differentiation and cure, and the author has witnessed the entire subsidence of the Addison syndrome, including the disappearance of the "white line" under the influence of suprarenal medication. Fresh glands from young calves may be used, the patient ingesting from 1.5 to 2 Gm. a day up to 5 Gm., or the dry extract can be taken. This is kept up for ten or twelve days, then suspended for two or three, and then recommenced. As a rule the extract of the whole gland is to be preferred, but the writer sometimes uses adrenalin. He found this particularly useful in infectious diseases when he suspected suprarenal involvement. Signs of cardiovascular weakness subside under the influence of the adrenalin, and the white line vanishes and reappears parallel with the fluctuations of the pulse, which is regarded as substantial proof of its pathognomonic character. The usual dose is 0.001 Gm. a day, but up to 0.006 may be given fractional in six doses, and this may be kept up for two months. The white line is the opposite of the "red line" of meningitis. The finger is drawn lightly along the skin of the abdomen; in a few seconds the path of the finger shows up as a white stripe growing more and more distinct and remaining stationary for three or four minutes and then disappearing. E. Sergent (Presse médicale, July 10, 1909; Journal American Medical Association, August 14, 1909).

TUBERCLE BACILLUS IN THE CIRCULATING BLOOD.

As a result of his studies, the author believes that tubercle bacilli can be demonstrated in the blood in every case where there is an active tuberculous process; also, that they are present in the blood of many apparently healthy persons, ready to produce tuberculosis as soon as lowered resistance from any cause gives them a chance. He also believes that the bacilli are transmitted from mother to child through the placenta. R. C. Rosenberger (New York Medical Journal, June 19, 1909).

Book Reviews

Essentials of Laboratory Diagnosis. Designed for Students and Practitioners. By Francis Ashley Faught, M.D., Director of the Laboratory of the Department of Clinical Medicine and Assistant to the Professor of Clinical Medicine, Medico-Chirurgical College, etc., etc., Philadelphia, Pa. Containing an Indican Scale in Colors, six Full-page Plates and Numerous Engravings in the Text. Net, $1.50. Philadelphia: F. A. Davis Company, Publishers, 1909.

In this age of scientific research, much has been written on the various laboratory methods and their value in the corroboration of the clinical diagnosis. To the busy practitioner who makes an effort to keep abreast of the advancement of medical science by the application of these methods in a small laboratory of his own, the saving of time is necessarily a matter of vital importance, and it is for this reason that we feel the book under review will receive a wide circulation. The author has not made an effort to displace any of the excellent text-books, "but rather to supplement them, by pointing out to the busy student and practitioner simple and reliable methods by which he may obtain the information desired, without unnecessary expenditure of valuable time upon difficult, tedious or untried methods." The definitions are clear and concise, and the subject headings are well selected. The text briefly considers the handling of the microscope. The examination of the sputum and the blood, and the determination of the opsonic index, the blood pressure, and the coagulation time receive careful attention. Blood and animal parasites, the determination of the functions of the stomach, the examination of the fæces, the urine, the cerebrospinal fluid, the body fluids, and the human milk are succinctly described. The various bacteriologic methods are considered in a chapter by themselves. The appendix contains much information of importance and includes forms for the report of the different examinations, the clinical terms to be used, and the apparatus and the chemical agents for the numerous tests, and the list of stains which are commonly resorted to.—R. B. S.

Surgery: Its Principles and Practice. Volume IV. Whole Work in Five Volumes. By Sixty-six Eminent Surgeons. Edited by W. W. Keen, M.D., LL.D., Hon. F.R.C.S., Eng. and Edin., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Phila. Octavo of 1194 Pages, with 562 Text Illustrations and Nine Colored Plates. Philadelphia and London: W. B. Saunders Company, 1908. Per Volume: Cloth, $7.00, net; Half Morocco, $8.00, net.

The present volume, the fourth of the series, is equal to its predecessors, both in matter and make-up. The paper is splendid and the illustrations clear and sharp. As to the text itself, the names of the authors and the departments treated by each offer sufficient guarantee; but a perusal of the work soon indicates that no expectation, however sanguine, has failed to be fulfilled. The contributors to the present volume and the subjects undertaken by them are as follows: "Hernia," William B. Coley; "Surgery of the Rectum and Anus," Robert Abbe; "Examination of the Urine in Relation to Surgical Measures," David L. Edsall; "Surgery of the Kidney, the Ureter, and the Suprarenal Gland," Joseph Ransohoff; "Surgery of the Bladder," Bransford Lewis; "Stone in the Bladder," Arthur Tracy Cabot; "Surgery of the Prostate," Hugh H. Young; "Surgery of the Penis and Urethra," Orville Horwitz; "Surgery of the Scrotum, Testicle, Spermatic Cord, and Seminal Vesicles," Arthur Dean Bevan; "Surgery of the Intestines, but Excluding the Appendix, the Rectum and the Anus, and Surgery of the Omentum and Mesentery," Weller Van Hook and Allen B. Kanavel; "Surgery of the Appendix Vermiformis," John B. Murphy; "Surgery of the Ear," Edward Bradford Dench; "Surgery of the Eye," George E. de Schweinitz; "Military Surgery," General Robert M. O'Reilly; "Naval Surgery," Surgeon-General P. M. Rixey; "Tropical Surgery," Walter D. McGaw; "The Influence of Race, Sex, and Age in Surgical Affections," William L. Rodman.

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Clinical Lecture

EPITHELIOMA.*

BY JOHN V. SHOEMAKER, M.D., LL.D.,
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PHILADELPHIA.

GENTLEMEN: Mrs. A. G.; aged 54 years; nativity, United States; exhibits a wart-like growth on her forehead, which, at the present time, is in appearance somewhat obscure. However, her history will help us to arrive at a definite and positive diagnosis.

Family History.—Her parents are both dead. The father, aged 72, died of paralysis, and the mother, aged 66, of cancer of the breast. She has two sisters in good health. Another sister, older than herself, died two years ago of cancer of the uterus. Her two brothers, both younger, are in good health. She has no knowledge of her grandparents, except that they all died at a matured age.

Previous Personal History.—During her childhood days she had measles and diphtheria. At the age of twenty-three she had pneumonia and typhoid fever at the age of twenty-five.

Social History.—She was married at twenty years of age and is the mother of three daughters and four sons, all of whom are in good health. Her habits have always been very good.

Present Illness.—About four months ago there appeared on her forehead where now the present growth exists, a small hard papule which was neither painful nor did it show a tendency to suppurate. She was little concerned about it until six months ago when she noticed a comparative increase in size

* Delivered in the Clinical Amphitheatre of the Medico-Chirurgical Hospital.

and also slight pain at intervals. There is at present a small zone of infiltration surrounding the growth. On close inspection there is slight desquamation and shows a tendency to slough.

Diagnosis.—This, I believe to be an epithelioma in its incipient stage, and my belief is influenced greatly by the family history. The history of the onset, its development and appearance are all very suggestive of a beginning epithelioma.

Great care should be taken in diagnosing an epithelioma since it may be confounded with the lesions of syphilis, lupus vulgaris, ordinary wart, condylomata and seborrhœa sicca. The diagnosis is easy in the advanced stage but in some cases it is very difficult to decide whether a wart-like growth is the initial lesion of epithelioma or an ordinary wart. As a rule warts that develop after thirty years of age are suspicious and should be removed. The differential diagnosis is shown in the following tables:—

Epithelioma (papule).	*Syphilis (hard chancre).*
1. No history of infection.	1. History of infection.
2. Evolution slow.	2. Evolution rapid.
3. Lancinating pain.	3. No pain.

Epitheliomatous Ulcer.	*Tertiary Syphilitic Ulcer.*
1. Lesions single.	1. Lesions multiple.
2. Secretion is blood streaked.	2. Secretion is fœtid, yellow, and abundant.
3. Surrounded by a well-marked zone of infiltration.	3. Zone of infiltration is either absent or insignificant.
4. Long duration.	4. Short duration.
5. Yields only to destruction.	5. Heals under the use of the iodides and mercury.

Epithelioma (papillary).	*Condylomata.*
1. Lesion painful.	1. Lesion not painful.
2. Lesions usually single.	2. Lesions usually multiple.
3. No history of infection.	3. History of infection.
4. No concomitant signs.	4. Concomitant signs of syphilis.
5. Occurs in advanced age.	5. Usually occurs in youth and middle age.

Epithelioma.	*Lupus Vulgaris.*
1. Develops in middle and advanced life.	1. Develops usually before puberty.
2. Lesions single.	2. Lesions multiple.
3. Course more rapid.	3. Course slow.
4. Ulcer deep.	4. Ulcer superficial.
5. Lancinating pain.	5. Pain absent.
6. Secretion blood-streaked and viscid.	6. Secretion abundant, yellow, and puriform.
7. Edges and base hard, characteristic pearly border.	7. Edges and base soft.

Pathology.—Microscopically, the process consists of a proliferation of epithelial cells growing downward into the corium of the interpapillary projections of the rete mucosum. The downward growth and continuous multiplication of epithelial cells forms an unusual length of the interpapillary processes, which project down into the corium like the fingers of a glove. These finger-like processes continue to multiply and increase in size. Then they divide into

branches, which unite with one another to form a framework of epithelial tissue. The cells of which they are composed become pressed together and form onion-like bodies, the so-called cell-nests or globes. In other instances they form club-shaped masses. This rapid cell-growth requires increased nutrition, hence the blood-vessels become enlarged; wandering cells and lymphoid corpuscles fill up the lymphoid spaces and the skin becomes infiltrated with serum. Finally the pressure of the cell-masses gives rise to irritation and inflammation.

The second stage of the disease is marked by degeneration and ulceration. When the ulceration advances rapidly and extends to the deepr tissues, the neighboring lymphatics soon become affected and through them the involvement of the entire system takes place. However, when the ulceration is superficial, the patient's health is not much affected. Muscular tissue and parenchymatous organs undergo fatty degeneration and the composition of the blood is altered, followed by the production of toxic products in the tissues. The albumin is increased irrespective of the nature and amount of the food consumed and there is decrease in the alkalinity of the blood. This is followed by the excessive formation of urea which, nevertheless, is imperfectly eliminated, and some cases have been reported in which the excretion of urea had entirely ceased.

Etiology.—The etiology of this affection is obscure. The disease is brought about in some cases from long-continued pressure or other mechanical irritation. Any locally irritated tissue may be the starting point.

Many theories have been advanced to explain the cause of this growth, but none have, as yet, been established. In a majority of cases it is attributed to irritation either by contact with paraffin or by the irritation of soot in the folds of the scrotum, thus producing chimney-sweepers' cancer. Epithelioma of the tongue and lip has been produced by the irritation of a short clay pipe or a broken tooth. Epithelioma has also occurred in cases where there was no irritation. Old scars, pre-existing warts, nævi and sebaceous cysts frequently undergo degeneration without an apparent cause and become the seat of epithelioma. As a rule this affection is not inherited, but in this patient's family there is a predisposition to cancer. A theory has been advanced that cancer is of parasitic origin and cases have been reported where the disease has been transmitted from one individual to another, and some experiments have demonstrated that cancer may at least be transmitted from one animal to another of the same species. Epithelioma occurs in middle life and more frequently in men than in women.

Treatment.—In this particular case I believe immediate excision is the very best treatment. There is very little involvement of the surrounding tissue, consequently the wound can be allowed to heal by first intention. Of course after excision the wound should receive a number of x-ray treatments. Some patients always shun the surgeon's knife and in such cases a caustic may be employed. In beginning superficial epithelioma I have found the emulsion made from the Abrus precatorius bean most useful to destroy the growth. The emulsion should be fresh and carefully made. Great care should be exercised in its application so that not too much of it is brought in contact

with healthy skin. The slough, however, is soon followed by healthy granulation and repair of the destroyed tissues.

The Abrus precatorius bean belongs to the leguminous family and is a native of India, but also grows in other tropical countries. It is small, nearly round, of a bright red color, with a black spot at the hilum. The poisonous constituents are a globulin and an albumose, the action of which closely resembles that of toxins of bacterial origin. No alkaloid is present in the bean.

The therapeutic action of Abrus is that of a strong escharotic, and it is often used with beneficial results in the treatment of trachoma, chronic metritis and chronic suppurative otitis. Either the powdered drug may be applied by means of a camel's hair brush or an infusion may be made by triturating three beans in a mortar with an ounce of cold water, to which is added an ounce of hot water. When cold the solution is filtered, the resulting filtrate, containing the globulin and albumose, if introduced into the eye is highly irritating and sets up a purulent inflammation. Its therapeutic success in epithelioma, trachoma, etc., depends largely upon the method of application. Good results are sure to follow if cautiously used in order to prevent excessive reaction.

Prognosis.—There is no glandular involvement in this patient, consequently I believe that immediate excision and x-ray will arrest all further progress.

Original Articles

A STUDY OF CONTEMPORARY WORKMEN'S COMPENSATION.*

By W. H. ALLPORT, M.D.

First Paper.

The writer makes no claim to having prepared these papers from a purely medical standpoint; in fact, most of the aspects of the conditions discussed in the following pages are altogether legal. None the less a knowledge of those conditions which inevitably arise in consequence of industrial injuries, and the methods which the world at large is adopting to cope with them, is of grave importance to the physician who would keep in touch with the society in which he lives. Such knowledge properly employed is bound to give him, not only keener zest for correct and observant practice, but also a broader sense of his

* The synonymous terms *Workman* and *Employe* are here used in the sense defined by the English Workmen's Compensation Act of 1906, *q.v. post.*

The term *Compensation* is used in the sense implied in the same Act; *i.e.*, a recompense, or *solatium*, for disablement, and not a wage for service.

duties towards both the patient and the corporation he may happen to be serving. Furthermore, there is no great doubt but that we are on the eve of most important legislative action—both State and Federal—in these matters, which will touch the medical profession at many vital points.

The reason, therefore, for the presentation of such a subject by a medical man in a medical journal is sufficiently obvious, and does not require further comment or excuse.

Syllabus.

Attention is invited—but not necessarily in the order laid down in the syllabus—to the following aspects of the subject:—

1. The development and some of the changing features of contemporary law, in so far as the same relates to injuries to workmen.

2. Certain common-law doctrines by the use of which a large body of otherwise humane and intelligent lawyers—usually actually or prospectively in the employ of corporations—still thinks the ends of justice are best attained. Certain weak points in these same ancient but still operative doctrines, where many of the best modern lawyers think change is impending and highly desirable.

3. The two methods by which these changes are evolving themselves:—

a. The European or constructive method, based on the principle of a scientific plan of advance through positive betterment of the *modus vivendi* between employers and workmen;

b. The American or destructive method, based on the principle of prohibitive enactments, levelled only at the most flagrant encroachments which the employer has been heretofore enabled to make upon the personal rights of the individual workman, under cover of the common law.

4. The English Laws.

5. The German and Continental Laws.

6. The United States Federal Laws.

7. State Laws of the United States.

8. The forces operating toward and against the enactment of workmen's compensation laws in the United States.

9. Probable methods by which such laws will eventually reach the statute books.

I

It must be quite apparent, even to the casual observer, that the conditions of life and law affecting the relation of master and servant have changed during the last generation through no uncertain tendency, and more than by a natural and gradual progression. This progression *per saltem* has been due especially to the substitution for the slow labor of water and of the hand, of rapidly moving machinery driven either by steam or electricity; and generating destructive as well as constructive energies of enormous power, often capable of transmission over paths and distances not contemplated at their point of origin.

To satisfactorily adjust the problems produced by these new and terrible potentials—owned and at the service of employers, and under control largely

of employes—we find that not only has statutory law been specialized and complicated, but many of the so-called fundamental principles of common law are no longer found to meet present day exigencies. Certain of those patriarchal axioms by which courts are wont to season the law are rapidly finding their way into the scrap heap, because they do not contain enough of the leaven of justice to keep them wholesome under modern conditions.

Many examples of this process of evolution will readily occur: Thus, the old adage, that "he who handles machinery must take the consequences"—*volenti non fit injuria*—has given way to safety appliance acts, factory laws, shop inspectors, employes' minimum age limits, and other positive methods of enforcing protection of those who earn their livelihood as operators of machinery.

The old "Common Employment" or "Fellow Servant" doctrine[1] has become worn so threadbare by seventy years of common-law service in the interest of corporate masters, that even the myopic legal eye has begun to see that the cloak is too meager and too full of holes to longer shelter the overgrown modern corporation against the claim of the employe injured through no carelessness of his own. Many lawyers are even disrespectful enough to affirm that Abinger's decision, and Shaw's American application of it, were villainously and perniciously bad law from the start. We may concede, perhaps, that such judge-made law may have done very well to defend masters against house servants, or to meet those primitive conditions where every employe saw and was seen by every other, and all worked under the direct eye of the master; but it can hardly convey exact justice to the family of the dead engineer, who is killed through a faulty train order issued by a dispatcher a hundred miles away.

The time-honored doctrines of "Assumed Risk" and "Contributory Negligence" come also well within this list of obsolescent formulæ, which a long suffering public is commencing to recognize as not comprehensive or humane enough to the employe to meet the demands of modern justice.

In place of these and many other outgrown fetishes and forms of ancestor worship, which passed as common law among the lawyers of early and semi-agricultural days, we are coming to see that vastly broader and more humane principles must underlie our complicated modern life, if law is still to be the embodiment of justice.

A truer conception of law than any laid down in the mediæval and evasive doctrines of fellow servant and contributory negligence, is to be found in the theory that all corporate and public, and many private, rights flow from and are farmed out for the benefit of the community. If a corporation or manufacturer thus becomes merely a public agent, then the injured employe, whose disability will eventually make him or his family a public burden, should —unless grossly and individually responsible for his injury—be entitled to recompense, and the community should bear the charge through an addition made to the original cost of the product turned out by its agent. "If a corporation has no recourse but to replace a wrecked engine, why not reimburse

[1] First laid down by Lord Abinger in 1837 in his decision in the Priestley case, and restated in 1842 by Chief Justice Shaw, of Massachusetts, in the Farwell *vs.* Fitchburg R. R. case.

also the injured engineer and charge both items off to maintenance?"[2] These charges in turn must be balanced later on by a slightly higher tariff collected from the community.[3] As we shall come to see in our examination of the laws of those European countries where this system is actually in force, such a method breeds no litigation, debases no workman, and, by virtue of its wide apportionment, the charge is absorbed unconsciously by those who eventually have to bear it.

None of these far-reaching social principles have ever received even the scantiest recognition from the eye of the common—or judge-made—law, which has never looked—when it looked at all—in any direction other than backward and inward.

The best that the common law has ever done has been to recognize the ruthless rapidity and strength of the modern machine, by no longer exacting of employe, passenger, bystander, or wayfarer more than the ordinary efforts of the instinct of self-preservation when brought in contact with such appliances. Even these efforts are often conceded to be feeble and unavailing, and the law very properly exacts from the corporate interest, as a price which it pays for rights of way, better power, increased production, and higher speed, a pledge of safety and protection for those who approach its property. The owner or operator of "ways, works, or machinery"—who is, after all, as we have seen, but the agent of the public—shall so safeguard them that no properly instructed or right-minded person—whether employe, passenger, or bystander—shall be injured on or by them except through his own wilful and voluntary act. Any employer or proprietor not furnishing such protection is guilty—under the common law—of Negligence.

> "By negligence is meant, in law, the failure to exercise that degree of care which the law requires for the protection of those interests of other persons which may be injuriously affected by the want of such care."—*Century Dictionary.*
>
> "By negligence is meant, in law, the omission to do something which a reasonable man, guided by those considerations which ordinarily regulate the conduct of human affairs, would do, or doing something which a prudent and reasonable man would not do."—*American Law Dictionary.*

Claims made under the common law by an injured workman seeking redress in American courts from an employer, are usually based on some form of negligence of the latter's duty to fulfil this pledge of safety to his employe.

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[2] J. W. Lewis, Atlantic Monthly, January, 1909.

[3] From President Roosevelt's message of December 4, 1906, referring to the Employers' Liability Act of 1906. "It was a marked step in advance to get the recognition of Employers' Liability on the statute books, but the law did not go far enough. * * * The inevitable sacrifice of life though reducible to a minimum, cannot be eliminated. * * * It is a great social injustice to compel the employe, or rather his family, to bear the entire burden of such sacrifice, when the injury is often the direct result of the legitimate risk of trade. Such risks and burdens should be placed where they belong—on the cost of the completed article, through the medium of an assessment against the employer. Trade risks should not be borne by the workmen."

It might seem at a casual glance that it would be easy to recover compensation on such a plea. But the common law has always refused to recognize any of the broader responsibilities which the manufacturer and his product owe to the workman, and insists that all negligence shall be traced to and charged only against its exact source.

NOTE.—Statistics vary as to the responsible source of industrial accidents and their attendant injuries. Most American articles and statistics on this subject are based on foreign sources, since the laws of few American states have reached even the preliminary stage where employers are obliged to furnish casualty information to insurance boards or labor commissioners. A recent American writer states that about 20 per cent. of these accidents are due to negligence of the employer; 30 per cent. to negligence of the workmen; and 50 per cent. to unavoidable causes. These latter constitute a class of legitimate *risques professionel.* Another writer (Warner, "Green Bag," 1906), probably deriving his statistical information from the same source, cites the New York Labor Commissioner's Report of 1889, to show that in Austria 75 to 80 per cent. of injuries are due to the last mentioned cause, and not to any avoidable negligence. In Austria, only one per cent. of accidents are now assignable to employers' negligence, as against 20 per cent. in Germany, 12 per cent. in England, and an unknown but probably extremely high percentage in the United States.

These are late statistics. Prior to the date when the last very stringent Austrian laws of 1902 went into effect, the percentage of unavoidable accidents out of the total was much less—50 to 55 per cent.

Under a mutual scheme of accident insurance, started in 1897 by the South Metropolitan Gas Company of London, the number of accidents per thousand showed, during the ensuing ten years, a steady decrease of about 5 per thousand per year, or from 82 per thousand in 1897 to 37 per thousand in 1906. This remarkable decrease in the percentage of accidents was due to two causes: first, an effort by the company to give the employes better protection, and second, the organization of the employes of the various stations of the company into separate branches, with their own assessments and statistics. Improvement in the statistics for any branch resulted in the reduction of the assessment against the members of that branch. As will be seen later on in the discussion of German laws, this detail was borrowed from a similar system established among groups of German employers.

These statistics, if correct, show conclusively when compared, that both employers and employes are led to eliminate their own percentage of avoidable accidents when brought face to face with the fear of financial loss or criminal prosecution.

And so the employer responds with various counter-pleas—*tu quoque*—unless a statute expressly forbids them—some just, some unjust, and all legal—which enable him to shake off his pursuer by proving either: that the negligence was not his; or had been contracted for; or was overshadowed by a more proximate negligence on the part of the injured plaintiff; or that the latter knew beforehand of the negligence and assumed the risk of injury through it by remaining in the service.

Various phases of the doctrine of negligence, with its Pandora's box of troubles for the employer, the workman and the public, will be discussed more in detail when considering the American aspects of workmen's compensation.

The evolution of the English laws relating to industrial accidents furnishes at this point an instructive study for those interested in recent efforts to galvanize life into the common-law mediævalism of American courts.

II

Workmen's Compensation for Industrial Accidents in England.

Under the common law, which, in England, governed without restriction in these cases until 1880, the employer was liable to the employe for injuries resulting from breach of duty, on the part of either the employer, or of any one authorized to act for him, even though the employer was unaware of the specific act of negligence.

Thus, negligence became—very properly, according to the notions of early days—the basis of the action, but unfortunately it also became the basis of the defense, and the English workman was usually effectually barred from recovery by one of the following pleas, drawn from the abundant stock of English judge-made laws:

1. A plea by which the burden of responsibility was shifted to the shoulders of a neglectful fellow servant—the "Common Employment Doctrine," based on the decision of Lord Abinger in the "butcher's boy" or Priestley case of 1837.

2. The ancient doctrine of "Contributory Negligence," a plea by which the burden was shifted to the shoulders of the injured party himself, provided he had contributed to the accident by the smallest measure of negligence.

3. The still older doctrine of "Assumption of Risk," with its corollary —*volenti non fit injuria.* "Shortly, the servant must have been willing to encounter the risk, and at his own expense to bear the consequence."[4] Also, if he had not wished to assume the risk of the known negligence of his employer, he could have quit his service.

Thus the employe, though injured through no fault of his own, was left, to use a somewhat homely expression, to hold the empty bag, and the employer took all the profits of his perilous labor. It may be observed, in passing, that the law in many of those American State Courts where common-law practice still governs, has never advanced beyond this stage.

To remedy this outrageously oppressive attitude of the English courts towards the workman, Gladstone, in 1880, secured the passage of the Employer's Liability Act. This act was modeled after the Prussian Act of 1838, which was originally designed to protect railroad employes only, but which was expanded and incorporated into the German Imperial Code of 1871. The Gladstone Act had all of the vices of its prototype of 1838, without any of the safeguards added either in the German Code of 1871, or in those later German laws which followed shortly after the Gladstone Act. Whilst this Act specifically abolished the tripod of common law defense just mentioned, it was still based on negligence, and threw upon the employe the heavy and difficult burden of proving the same. In addition, no provision was made to prevent the forestalling of claims by contract, and employers were soon informed by their legal advisers that they could evade their obligations under the Act, by contracting with employes to renounce all those rights which the Act intended to confer upon

[4] Roberts & Wallace, Employers' Liability, p. 165, 4th Edition, English.

them. Such contracts are still valid in many American States; all railroad employes sign them on entering service, and the document passes among this class of our working men under the often prophetic title of "death warrant."

Had Gladstone been more familiar with the inevitable socialistic trend of German thought, and with the legitimate imperial efforts to guide and counteract that tendency, he would have detected the rising movement which culminated in the great series of German laws of 1881-1890. Even in his own country this movement was rapidly ripening, and he need not have left it to Joseph Chamberlain to enunciate to the English-speaking world those far-reaching principles which first had authoritative public utterance in the Kaiser's speeches before the Reichstag from 1881 to 1884.

NOTE.—A few extracts, freely translated from two of the speeches of the Emperor, are interesting in this connection, as showing the broad spirit of intelligent statesmanship which animated this best and wisest of German rulers.

"I have already expressed to you my belief that the remedy for social evils does not lie in the direction of a repression of the social-democratic movement, but is to be sought more justly in the enactment of mutually satisfactory measures, which will tend to the advancement of the welfare of the workman. We hold it to be our imperial duty to ask the Reichstag again to lay more closely to their heart this undertaking, and feel that God will have blessed our reign more signally if we could leave behind us the consciousness that we have given to the humbler dwellers in the Fatherland, a greater security and independence of circumstances, through the enactment of laws tending to remedy the situation of those who are legitimately in need of assistance. In our efforts directed towards this purpose we are certain of the agreement of all the federated states, and hope confidently for the support of the Reichstag, without consideration of individual or party differences. To find the right ways and means for this provision is perhaps difficult, but it is also one of the highest of our common duties, resting as it does, beyond the domain of the civil law, and on the traditional foundation of the Christian life of our people. It is believed that a solution of this problem—which the power of the Executive alone is not sufficient to achieve—*will be secured by bringing the varied activities of our national life together into the form of incorporated associations of industrial units under the state protection and control.* Even by this means, however, it does not seem to be possible to reach the end of our desire without making use of those methods which it is within your privilege alone to employ; but our imperial duties impel us to neglect no agency at our disposal to further the betterment of the position of the workman, and the peace and contentment of the working classes, as long as God gives to us, also, the strength to work."

It was not until 1893, that Chamberlain took the position, in advocating a Workmen's Compensation Act, that many industrial accidents were altogether unavoidable either by employer or employe; that they were phenomena inherent to industry; and that their expense should justly be charged against the only factor in the balance sheet entitled to bear it—the cost of the finished product. To Asquith, however, was attributed some years later the apothegm that "the blood of the workman is part of the cost of the product." These utterances, as already noted, were foreshadowed a decade before in the Kaiser's speeches from the throne, and in the subsequent discussions on the floor of the Reichstag.

Although violently opposed by the large manufacturing interests, the measure of 1893 failed of enactment, not because of this novel position taken by

Chamberlain and Asquith, but because the radical element in the Commons very justly refused to accept an emasculating clause, inserted in the House of Lords, permitting employers to nullify the Act by contracting with employers to renounce any rights which its provisions might secure to them. Thus, final legislation was postponed until 1897, when, a Tory government with Joseph Chamberlain in the lead, enacted the first experimental Workman's Compensation Act—the most radical and yet the most conservative industrial law ever passed in England. This Act reached a certain limited number of especially dangerous industries, and under it seven million employes secured relief.

Such experimental legislation was planned broadly on the lines of the German law of 1884-5, and was followed shortly, as in Germany, by the appointment of a commission to inquire into the results of its operation. A brief survey of the commission's report shows that although the imposition of disability pensions threatened the employers with a constantly increasing burden; and although the enforcement of the act terminated their willingness to contribute to any previously existing mutual insurance scheme, there was very little, if any, increase in the cost of the finished product. On the other hand, it diminished very materially the quantity of litigation and its cost to both parties, and led, on the whole, to a much more friendly status between employer and employe.

This report, and the statistics which were collected after several years' operation of the Act of 1897, served in a large measure to stimulate further legislative effort towards a more comprehensive English law, which would not only simplify and embrace previous enactments, but which would give to all workmen the rights which, under the law of 1897, were enjoyed by only one-half of their number. But it is more than likely that this final effort, which saw its successful consummation in the recent Act of 1906, was the direct result of a study by Asquith and other English statesmen, of the Imperial Industrial Code of Germany, of 1900, which represents the ultimate and most far-reaching effort of the Reichstag.

It is to be noted, however, that whilst the results sought by both laws are practically identical, the English method of approaching their industrial problems differs radically from that pursued by continental governments. There is a manifest effort in the English law to adhere to the older structural forms of administration, and it bears less evidence of that tendency to radical reconstruction which might lay it open to the charge either of paternalism or socialism. In these and the following ways does the English law of 1906 approach more nearly to a realization of those methods by which we, in this country will, in the near future, modify or reconstruct our own system of dealing with industrial casualties.

For example, compulsory insurance has no place in the Asquith Act of 1906, because a system of Friendly Societies, under supervision of a Registrar's office, was firmly implanted in Great Britain even before the passage of the Gladstone Act. These societies have been found to supply satisfactory working men's insurance, especially when employers make voluntary contributions to the society. Again, both the Chamberlain and Asquith Acts are left to work

themselves out automatically on their own merits, with no especial machinery devised for the purpose of carrying out their provisions, other than that of the trade committees and county courts already in existence. These functions of trade committees and county courts have been expanded by the Act, so that the processes of settlement by arbitration through committees are more definitely legalized. Should no committee exist, either both parties to the controversy, or, the county courts, are empowered by agreement to appoint arbitrators, paid by the Treasury, to decide claims for compensation brought under the Acts. In the event of agreement failing, either party to the controversy may request the judge of the county court to proceed as arbitrator, in accordance with the usual rules of his court. Should the court prefer not to serve, he is authorized to appoint an arbitrator in his stead. The Secretary of State appoints and pays medical referees, and the right of appeal from the decision of such referees is granted in specified cases. Trial by jury is therefore abolished in cases adjudicated under the provisions of these Acts. Should the employe elect, the way is still open to proceed against his employer by civil suit under the common law, or under the Gladstone Act of 1880.

It will thus be seen that the Workmen's Compensation Act of 1906, is intended to supplement rather than to supplant the already existing legal machinery. In the practical test, however, both workmen and employers have come rapidly to a favorable opinion of the later laws, which embrace in their operation over thirteen million individuals, or the entire working population of the United Kingdom. Out of 2,065 deaths through trade accidents in 1904,[5] only 524 were made the basis of proceedings in the county courts; the remainder were settled by committees or arbitrators under the terms of the Chamberlain Act. Twelve suits were brought for *damages* under the Employers' Liability Act of 1880; the remainder were claims for *compensation* under the Workmen's Compensation Act. Out of 4,223 personal injury claims only 598 were brought before the county courts.

It is at present too early to furnish statistics of the operation of the Act of 1906.[6]

III.

Since the Workmen's Compensation Act of 1906 is the latest word in English law on this subject, and may be supposed to represent the best which Anglo-Saxon industrial evolution can yet accomplish for the workman, the following brief generalized summary of its more important provisions is offered: (See also the previous section for the details of arbitration or other legal proceedings).

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5 In Great Britain there are reported annually about 18,000 trade accidents.

6 Recent statistics show that the total number of judges for civil cases in England and Wales is 92, for a population of 32,000,000. As illustrating the enormous excess of civil processes in this country, a late report shows that there are in Illinois, for a total population of about 5,000,000, 216 judges, besides justices of the peace and federal judges—a veritable legal debauch. These figures demonstrate, more loudly than any argument, the crying necessity for some radical change in the adjudication of those industrial claims which now come before American civil courts and juries.

Any workman sustaining an injury or contracting certain diseases in consequence of employment may demand compensation from his employer under this Act.

But, should he choose, he may proceed—if the employer has been guilty of personal or wilful negligence—by civil suit under the common law, or under the Gladstone Act; and should he lose his civil suit he may still seek compensation under this Act of 1906.

The Act does not bar proceedings against employers to assess fines for violation of other laws. (In this respect the Act bears a strong resemblance to the laws of many continental countries.)

Ample provision is also made for the adjustment of compensation, either by previous agreement, by arbitration, or by the stipulations of certain approved Friendly Societies. Any employer and his employes may agree on an independent scheme of insurance, but such scheme must have the periodical approval of the Registrar of Friendly Societies.

Arbitrators are appointed by the county courts; medical referees are appointed by the Secretary of State. Their fees are paid out of a fund provided by a separate Act of Parliament.

Contracts to relinquish claims for prospective personal injury are void.

Unless the employe is seriously injured, or dead, he or his heirs cannot recover for injuries due to wilful or flagrant misconduct.

Employers must make returns to the Secretary of State of all accidents and the compensations allowed therefore.

Under certain conditions the formation of Trade Groups among employers, similar to those existing in Germany, is optional, and may even become obligatory.

The plaintiff's attorney—if one is employed—has no lien on the amount recovered, and the county court under whose jurisdiction the arbitration takes place, decides his fee.

"Workman" means any person working continuously in the service of an employer, whether by way of manual or clerical work, or otherwise, provided he earns less than £250 yearly. Only those performing manual labor are included if their earnings are over £250, and casual employes, police officers, out-workers, and resident members of the employer's family are excluded.

An examination by a medical representative of the employer is a *sine qua non* in all cases occurring under this Act. The examination may be repeated, if necessary, at proper intervals.

No compensation for less than one week's disability.

In case of death through accident, the dependants of the workman receive not less than £150 or more than £300, the amount paid being estimated on the basis of three years' average wage.

In case of total or partial disability the workman receives up to 50 per cent. of his average weekly earning capacity, but not to exceed one pound per week.

The amount to be paid for partial disability is decided by the arbitrator, after taking the opinion of the medical referee and other qualified experts. Provision is made for provision of payments on request of either of the interested parties.

Where a weekly payment has been continued for six months or more, the employer may elect to cancel the same by payment of a lump sum yielding an income—if invested in the National Debt through the Post Office Savings Bank—equal to 75 per cent. of the annual value of the weekly payment. This is optional with the employer. The investment of such lump sum is optional with the court.

The entire burden of these payments falls on the employer, although the employe may increase the payments by approved insurance, and the employer may protect himself by the same method.

In case of insolvency, claims for compensation for personal injury have a first lien on the assets.

All death and annuity payments are made to, and handled by the county courts, and the courts are empowered to administer and invest these funds in such manner as they see fit in the National Debt or the Post Office Bank.

Ample provision is made for the enforcement of all the stipulations of this Act, and for preference of pension claim in case of insolvency of the employer.

Thus the English law follows the majority of continental laws in placing the burden—regardless of culpability for the accident—altogether upon the cost of the product, *via* the employer. The German law, as will be seen in a subsequent article, recognizes the necessity for a more equitable distribution of the burden, and charges a certain portion of the expense for the care of those injured against the sickness insurance fund, to which the employe contributes. Under certain conditions the State also contributes a percentage to these funds, on the theory that the State is thus relieved of an otherwise necessary charge.

MEDICO-LEGAL.

By E. S. McKEE, M.D.,
CINCINNATI.

INTERNATIONAL MEDICAL ETHICS.

Boas, of Berlin, has made a suggestion which to us seems wise and practicable, viz.: that at the oncoming International Medical Congress at Budapest this subject be brought up for discussion. After the question had been thoroughly discussed it would then be proper to appoint a committee to consider the subject further, and draw up a code and submit it to the leading societies of the various countries who could either accept, amend or refuse. The committee could be continued until a code could be produced acceptable to all

countries, and after such a code had been obtained it would be held to regulate the relation of foreign medical practitioners to one another. The moment is opportune for this work. Professor Boas's first and second contributions on this subject are published in *Berliner Aertzekorrespondenz,* 1907, No. 37 and *Berliner Klinische Wochenschrift,* 1908, No. 52.

LEGAL INQUIRY IN DEATH FOLLOWING OPERATION.

Probably the first legal inquiry of this kind in Scotland occurred in Aberdeen, in February last. The facts in the case are that a child who had just been operated on in the Royal Infirmary, after the administration of the anæsthetic had ceased, though still under its influence, became sick, and died from asphyxiation, being unable to vomit up some solid matter with which his stomach was charged. The testimony was that the proper instructions had been given as to food before the operation, but the mother said that she had received no special instructions as to his feeding, and that the boy's dinner, which he received two hours before the operation, had consisted of beef. She further stated that the nurse did not ask her what food the boy had taken that day, neither did the house surgeon or the surgeon. The surgeons stated in their evidence that they did not inquire as to what food the child had taken. The house surgeon testified that he administered the anæsthetic, A.C.E.; the child took it well. The operation was quite simple, lasting about eight or ten minutes and was very successful. About four minutes after the cessation of the administration of the anæsthetic the doctor noticed that the child was doing badly, showing signs as if he would vomit. Restoratives were applied and he recovered. This occurred a second, and a third, time and artificial respiration was resorted to and the boy's throat cleared out. Eventually, however, the symptoms of asphyxia were so marked that the operation of tracheotomy was performed and the boy vomited solid beef, and the surgeon took solid beef from his throat and from below the wound. The court in addressing the jury said that this was a case different from the usual class of cases in connection with the inquiries under "The Fatal Inquiry Act." There was no fatal accident in the case, and the reason why the inquiry was held was that the Lord Advocate may order an inquiry into any case where death has occurred under circumstances into which he thinks it necessary that there should be some investigation. Having reviewed the evidence the court concluded: "There has been nothing disclosed which in any way reflects on the management of the infirmary. It is essential, of course, that an institution of this kind, within whose walls a great and noble work is being performed, should carry with it the confidence of the public at large, and I can only desire to say that there has been nothing in this case suggestive that there was any carelessness in the way in which the operation was performed, or that reflected on the management of the infirmary in any way." This decision is especially grateful to our British confrères, in view of the stand taken by one of the coroners of London on holding inquests on deaths following operations.

MEDICAL EXPERT TESTIMONY.

This hackneyed subject is probably going to be improved in the near future. New York Supreme Court Justice Clearwater, chairman of the committee of the New York State Bar Association, appointed to consider the regulation and introduction of medical expert testimony, has given a concise statement of the matter in the *North American Review.*

The first of the many existing evils named by Judge Clearwater is the lack of a standard as to expertness. He mentions other evils as the giving of partisan evidence, contradictory evidence of physicians in equally good standing; unprincipled self-styled experts; trial judges who are incompetent to pass on the ability of experts or validity of their opinions; payment of witnesses by the litigant and consequently the employment of the best experts by the litigant with the longest purse; the contemptuous treatment some experts have had at the hands of unscrupulous lawyers, and most of all trial judges who have sought to draw attention to themselves by their manner of admitting evidence of bad quality. In order that the ends of truth and justice may prevail "the expert witness should be free from embarrassment, should have no clients to save and no partisan opinions or interests. He should speak judicially as an exponent of the science of medicine, with full knowledge of the highest authorities and of the most recent investigations dealing with his subject." "Scientific opinion," says Judge Clearwater, "to be of controlling value, can be given only under conditions of mental repose; a condition seldom found in the witness box. The ordinary witness testifies to facts, the expert to opinions. The expert should not form his judgment from the evidence of witnesses and should not draw inferences from their statements. While the hypothetical question seems involved the method pursued is scientific and calculated to eliminate the element of error so far as it is possible to do so. As far back as 1532, Henry VIII of England, in his published Code, gave power to appoint expert physicians and surgeons for the examination of injured patients before the court." Medical expert testimony long has been a necessary, and always will be an important, factor in the administration of justice. The medical profession can not do better than to get and read the paper of Judge Clearwater.

Ancient Legal Regulations of Medical Schools.

The University of Salerno has been the object of study recently by Dean Walsh, of Fordham University, of New York. He found there legal requirements for and of the medical student and practitioner which were equal to and, in fact, better than what we now have gained with such effort. Robert Ritter von Töpley, the well known Viennese historian of medicine, has only recently published this law in its entirety. The most important of these is the famous law of Frederick II, king of the two Sicilies, who afterward became Emperor of Germany. The student was obliged to follow three years' preliminary study at a university, study medicine five years and then practice for one year under the direction of a physician before beginning for himself. If he expects to practice surgery, he must study anatomy a year in addition to this. He must

exercise great care in regard to the drugs he uses and see that the druggist supplies them in their purity. Regulations are added for the druggist, constituting the first pure food law. Frederick opened the law with a paragraph declaring his interest in the health of his subjects and how much that is dependent on the proper education of the physician. On account of the serious damage which might result from inexperienced physicians he required that each one should pass a public examination before a teacher of medicine in the University of Salerno and should have a certificate not only from him, but also from a civil official, which declared his trustworthiness of character and sufficiency of knowledge. Violation of this law to be punished by confiscation of goods and a year in prison. Every physician was required to take oath that when it came to his knowledge that any apothecary had for sale drugs less than the normal strength he should report the matter to the court. There is scarcely a feature of our modern regulation of the practice of medicine and medical education that is not contained in this law of the early part of the thirteenth century.

Regulation of Prostitution.

Frederick Clift, M.D., of Provo, Utah, in a paper on the "Social Evil," published in the *Denver Medical Times*, for August, 1909, discusses the question of regulation as follows. He found that the system of regulation had been thoroughly tried in Europe and in many American cities. Everywhere it has been tried there has been a marked decrease in sexual diseases, not only among sinners, but of still greater importance, among their victims. The chief objection to religionists to regulation is that it recognizes and affords security for debauchery. Those who support regulation or license claim that all diseases of a contagious nature, regardless of causation, are a menace to the health of the people at large and should, therefore, be brought under the regulation of quarantine. To those who know, such as physicians, how much damnation is being stored up in this world for the innocent, whether religionist, infidel, atheist or agnostic, there is much to be said for this contention, but the arguments *pro* and *con* would extend beyond the limits of this paper. Suffice it to say, once confined to certain districts, under efficient police restraint, the prostitute can primarily be restricted from her worst effect upon the community: that of corrupting the youth of both sexes. In view of the known and positive dangers to which the innocent are exposed, I urge the religionists or moralists and the sanitarian to make peace and come together. Let them agree to some plan for the betterment of our fellow citizens and neighbors, of our sons and daughters—our own flesh and blood.

Privileged Communication and the Accomplice of Crime.

How far does a physician's devotion to professional secrecy render him an accomplice to crime is a matter of moment. The physician's course in this matter is often a decidedly hard one to decide. For instance, where a servant girl or nurse is afflicted with venereal disease and refuses to quit her job on the advice or command of her physician. Worse still is the instance of the

diseased man or woman who refuses to defer or quit altogether the matrimonial arrangements. Hard indeed, is it when as has been the case in some instances, well known, this professional secrecy affects the safety of the physician's own household. Professional secrecy does not require a physician to allow his patient to infect others with the measles or mumps. Why should he allow the patient with gonorrhœa or syphilis any greater rights. The man who visits a house of prostitution is, in many cities and States, protected from infection. Shall innocent wives and children not be allowed the same protection? We find a conflict between the physician's duty to his patient and the community in those instances where persons have responsible positions, where many lives, or health, or morals, depend on persons physically unfit. For instance, the color-blind railroad watchman; or the one subject to sudden death, or syncope, from heart disease, or epilepsy, or conditions causing possible or recurrent incapacity. There is a growing sentiment that a community has the inalienable right to protect itself. Cities of refuge have long since failed to protect the criminal; why should questions of professional secrecy when other lives or the State at large are endangered? Privileged communications as regards physicians have recently been very greatly modified with regard to certain contagious diseases and it is but a step to further this to other contagious diseases. A good means of differentiating is whether we are aiding in the punishment of a crime already committed, or to avert the commitment of one against innocent persons. The question is very ably discussed, editorially, by the *New York Medical Times* for August, 1909.

AMERICAN PROCTOLOGIC SOCIETY ABSTRACTS.

Reported by LEWIS H. ADLER, Jr., M.D.,
PHILADELPHIA.

(*Continued from September Issue.*)

"Pruritus Ani, Its Etiology and Treatment." T. Chittenden Hill, M.D., of Boston, Mass., said that he was convinced that pruritus ani was practically always caused by some local lesions of the pelvic colon or rectum, which produced an unnatural moisture about the anal region.

He said the most common sources of irritation, in the order of their frequency, were as follows: (1) Superficial ulcerations and abrasions of the anal canal. This lesion he found in about 75 per cent. of all cases and attributed the frequency of its occurrence to the method of fusion of the proctodeum with the blind end of the bowel. (2) Rectitis and sigmoiditis, which are the sequelæ of habitual constipation, often bring about a pruritus, since the passage of flatus allows a small quantity of mucus to escape. (3) Hypertrophied anal papillæ and inflammation of the crypts of Morgagni are more often the cause of pruritus ani than is generally admitted. (4) Small polyps of the anal canal, protruding internal piles, prolapse of the rectum

and anal fissure, do occasionally produce itching about the anus, but it is exceptional to find them the sole cause of chronic pruritus ani.

He stated that in order to attain permanent results, it was essential that the treatment be directed to the removal of the exciting causes. At the same time the skin in the immediate vicinity of the anus should receive appropriate treatment since it is nearly always in a state of acute inflammation from scratching, or so much infiltrated and thickened as to require stimulating applications: nitrate of silver and ointments, in order to bring about a return of a normal epidermis.

"A Consideration of the Prophylaxis and Treatment of Cicatricial Rectal Stricture," by Alois B. Graham, A.M., M.D., Indianapolis, Ind. Opinions were based upon the results obtained in the treatment of fifty-five cases. He stated that prophylaxis implies a careful rectal examination; a careful rectal examination implies an early diagnosis; an early diagnosis implies correct treatment, and correct treatment implies the prevention of a stricture.

When cicatricial rectal stricture is diagnosed, surgical intervention is indicated. In cases where there is no danger of infection, excision should be the choice of all the surgical measures at our command. If successful, its results are ideal because of the fact that it effects a cure by the complete removal of the stricture. In cases where it is not safe to practice the excision method (and there are many such cases), complete posterior proctotomy or colostomy, either alone or combined, should be performed. While neither of these surgical measures have effected an authentic cure, yet they undoubtedly can and have effected a symptomatic cure. Gradual dilatation should be employed only in cases of small annular stricture. The excision method needs no defense as its results are all that could be desired. As for the other surgical methods, the writer was not at all pessimistic as to the results which can be obtained, if they are followed by correct and systematic after-treatment.

"The Use of Spinal Anæsthesia in Rectal Surgery," by Collier F. Martin, M.D., Philadelphia, Pa., who reported 87 cases in which tropacocaine and stovaine were employed. The technic was given in detail. The method is not recommended where the hips of the patient have to be elevated.

Of the 87 cases, 57 were either frankly tubercular or the condition was suspected, 16 were alcoholics, 4 had anæmia with from 35 per cent. to 60 per cent. of hæmoglobin, 2 had sepsis, 2 cachexia, 2 were suffering from general debility and old age, 3 had cardiac complications and 1 refused to take ether.

The conditions operated upon were as follows: abscess and fistulæ, 54; hæmorrhoids, 21; rectal stricture, 2; sacral sinus, 1; fissure with fistula, 2; gangrenous cellulitis, 2; anal condylomata, 2; rectal carcinoma (perineal excision), 2; and Ball's operation for pruritus ani, 1.

The only complications observed were headache 18 times, coming on from 1 to 3 days after operation. Only three cases had severe headache lasting over one or two days. A few cases complained of some stiffness of the back of the neck and shoulders. One patient developed a temporary oculo-motor palsy

which recovered under treatment. In two cases, spinal fluid was not obtained because of the difficulty in inserting the needle with spinal deformity present.

Spinal anæsthesia was selected in cases with pulmonary tuberculosis to avoid the congestion following the use of ether. Alcoholics were also found easier to manage than when ether was used.

Under spinal anæsthesia, the sphincters are completely relaxed, there is no muscular spasm, and there is an entire absence of the venous engorgement and swelling of the tissues so often seen while the patient is under ether. Bleeding is not as profuse and is more easily controlled, since all parts of the rectal cavity are as accessible as their anatomy will permit. The complete muscular relaxation reduces the traumatism to the tissues.

Spinal anæsthesia is at its best when used in operations about the rectum and genito-urinary tract. Careful selection of cases, drugs of uniform strength and purity, and a careful technic will do much to re-establish the confidence of the surgeon in this method of producing anæsthesia.

"Vaginal Anus in the Adult, With Report of Two Cases," by Louis J. Hirschman, M.D., Detroit, Mich. Dr. Hirschman reported two cases of imperforate anus with the anomalous opening occurring in the lower part of the vagina, both occurring in adults. He successfully operated in both cases, restoring the anal outlet to its normal position with a good functional result in both cases. His first case was aged 25, unmarried, and until a few months before examination did not know that she was anatomically different from other young women. She was brought up by a maiden aunt who, while realizing that her charge was not normal, felt that as long as she was having regular bowel movements, she would put off any operative interference until later in life.

The operation in this case consisted in closing the vaginal anal orifice after dissecting the rectum free from the vaginal septum. There being present an infantile sphincter muscle at the normal anal site, an incision was made through the center of this, and by blunt dissection the tissues between it and the blind end of the rectum were separated. The rectum was then pulled down, opened and sutured to the integument. The perineum was not split open nor was the sphincter divided. A good functional result followed.

His second case was also unmarried, 23 years of age. The case was very similar to Case I except that there was an over-development of the sphincter vaginæ which gave her good fæcal control. There was present in this case a small fistula connecting the anus and vulva but not communicating with the rectum. In this case the perineum was split and the fistula dissected out. The vaginal anus was dissected free and brought down to the normal anal site in a manner similar to that pursued in Case I. The perineum was then repaired as in an ordinary perineorrhaphy. The functional result in this case was also good. The author concludes from his experience with these two cases, and realizing the very high mortality from operations for imperforate anus in infants, that where there is some abnormal outlet for the fæces present, it is far better to allow patients to go on in their abnormal condition

until they grow old and strong enough for surgical interference and the correction of nature's failure.

"Fistula in the Posterior Anal Commissure," by J. Coles Brick, M.D., Philadelphia, Pa., who stated that the anatomy of the posterior anal commissure is of such peculiar arrangement that ulcers or fistulas, in this region frequently do not granulate in a proper manner.

The greater part of the external sphincter muscle arises from the coccyx, and, after forming the ano-coccygeal body of Symington, passes around the anus, forming a Y-shaped or triangular *cul-de-sac* at the posterior anal commissure, making this the weakest part of the anal circumference. The levator ani muscle is separated from the coccygeous muscle by a cellular interspace, rendering possible an easy extension of pyogenic organisms.

In ulcerations or small fistulas in the posterior anal commissure, it is the writer's custom to make a triangular incision with the apex toward the anus, rather than an antero-posterior cut. In cases of fissure in this commissure, two incisions, one-eighth of an inch deep, are made down into the sphincter muscle on each side of the fissure, all fibrous tissue being removed from the fissure itself.

The physiological action is, that, during defecation, the lateral fibers of the sphincter forming the triangular space are at rest, due to their division; thus saving distention of this space, and consequently no interference with healing.

"Modified Technic in Resection of the Rectum," by J. Rawson Pennington, M.D., Chicago, Ill. Numerous illustrations were shown by the author, intended to serve as demonstrations designed and employed by himself and Dr. Gronnerud in resection of the rectum in a special case. The growth for which the method was employed extended upward from the upward border of the levator ani muscle for about two and one-half inches.

A perineorrhaphy was first done, splitting the recto-vaginal septum back to Douglas's *cul-de-sac*. The rectum was then dissected from its lateral and posterior connections upward until it could be pulled downward far enough to effect an end-to-end anastomosis, when the section, including the growth, was removed.

The incision was closed with buried catgut sutures, and silkworm-gut for the skin. The posterior vaginal flap covering up, as it did, the operating field, prevents the urine, vaginal and uterine secretions, from coming in contact with the wound.

"Abdominal Massage in the Treatment of Chronic Constipation, etc., by T. L. Hazzard, M.D., M.S., Pittsburgh, Pa. The writer referred to the fact that general massage had been practiced from very ancient times until the present for the relief of fatigue and for the purpose of increasing the flow of fluids in the blood-vessels, the lymph spaces and juice canals, by which more perfect elimination of waste is obtained and better assimilation brought about. Two conditions which, in his opinion the relief of, will do away with

two-thirds of the slight ailments as well as of some of the more serious ones. He began massage for the relief of chronic constipation and was much surprised to find the far reaching, adventitious effects produced. Among others, for example, that the chalky deposit in the joints in articular rheumatism under careful, patient, persistent manual therapeutics, as applied to the bowels, will entirely disappear more often than not.

Mentioned no particular method, saying that any good text-book would give the technic sufficiently well. This manipulation is recommended not only for chronic constipation, but also for the relief of coprostasis for which operation it is very frequently done.

After indicating more of the benefits and some of the dangers of the method, the writer said that, if this treatment called for more time than the physician or surgeon could spare, it had better be left off altogether, although the patient would surely lose a very great benefit. The paper closed with the remark that doubters as to the very great advantages which will accrue to the sick, in many, many ailments, have but to practice careful and intelligent massage to be convinced.

"Tubercular Fistula with Extensive Infiltration with Specimen Exhibited," by Samuel T. Earle, M.D., Baltimore, Md., who reported a case of tubercular ischio-rectal fistula, which, on the skin surface, resembled an acute inflammatory condition ready to break down, yet when opened, it proved to be a dense mass of fibrous tissue with only a few tracts of necrotic tissue running through it.

The patient was a policeman, age forty-five; robust and of a ruddy color; weighing 180 pounds; no cough, no history of pulmonary trouble. Patient admitted to hospital, December 29, 1906.

The left buttock was very much swollen and inflamed; there were several fistulous openings on its surface, which could not be followed far beneath the skin, and there was one of them that opened just to the right of the anterior commissure into the anal canal. Upon laying open the buttock between two of the openings, there was exposed a mass of white fibrous tissue that seemed to be encapsulated, except at points which apparently were necrotic, which was adherent to the subcutaneous tissue. Supposing it to be a tumor, which had broken down in places, an incision was made, on either side near each lateral border, for the purpose of removing it, which was done. The mass measured 6 x 3 x 2 inches.

It ran down to and some went between the muscles of the buttock, and in one or two instances involved the same. The tract from the inner margin of the mass to the opening in the anal canal was then laid open and packed with gauze. The cavity left was so large that sutures were introduced to draw the edges partially together, and to hold in the packing. These were supplemented by adhesive strips.

After the mass was removed, it was found to be composed principally of fat, with here and there a sinus which was surrounded by dense fibrous tissue from one-quarter to one-half inch thick, and there were found several large

larva, supposedly of flies, deep down in the sinuses of the growth. The tapering, tail-like process, that extended over the trochanter major, was composed principally of muscle.

Upon microscopical examination, the growth proved to be tubercular. The patient made a slow but complete recovery. The large cavity filled in completely. The patient is now perfectly well and robust.

PERSONAL OBSERVATIONS OF A CASE OF PARALYSIS AGITANS (SHAKING PALSY) PARKINSON'S DISEASE, WITH MULTIPLE COMPLICATIONS.

By T. G. STEPHENS, M.D., Ph.D.

The patient's name is Jeremiah Thomas, 101st Illinois Vol. Inf., U. S. A., pension claim No. 89,565; enlisted August, 1862; discharged 1865; a victim of paralysis agitans. The disease made its appearance soon after being shot through the left thigh and exposure to cold during a campaign through Georgia in time of the Civil War, 186-. The march of the disease and its complications have been very slow. Nothing of a hereditary or neurotic taint can be determined from his ascendants or decendants. At the age of twenty-one years he enlisted in the army, was five feet eleven inches in height, stood erect; is now five feet two inches, semiflexed; weighed on an average until the last twelve months 185 pounds; has lost twenty pounds. Rosenthal says among the causes of paralysis agitans we may mention debilitating diseases and the prolonged action of cold, mental shocks, fright, which during the first ten years of life may in predisposed individuals cause paralysis agitans (shaking palsy) at a more advanced age. The disease represents the most severe form of tremor, and was first discovered by Dr. Parkinson, an English author, in an essay on shaking palsy in 1817, describing the disease under the name of shaking palsy, belonging in the group of affections characterized by tremor rather than among the paralytic affections. The gravity of this results from its intensity and from its continuous progress, extension, and termination in general paralysis. It has no anatomical characters as yet discovered. From clinical histories belongs under the category of disseminated sclerosis. Paralysis is a classic word and comprehends adjectively several varieties, a case of which is mentioned in antiquity. Jeroboam, King of the Ten Tribes, 976 B.C., had paralysis of one hand.

The different varieties of tremor are produced by different causes and have different characteristics. *a.* In senile trembling not alone the limbs but especially the head is agitated by constant trembling movements; furthermore, the former is not accompanied by neuralgic pains. We have the characteristic muscular stiffness, the deformity of the hands, or the tendency to movements of propulsion or recoil.

b. Alcoholic tremor is characterized by the excited condition of the patient by delirium; is presented with all kinds of imaginary visions, and by the dissemination of the tremor under the influence of stimulants.

c. Mercurial tremor is almost always preceded by salivation, ulceration in the throat, swelling of the gums, fœtid breath, diarrhœa, loss of appetite, and exhaustion.

d. Lead tremor is characterized by the previous occurrence of lead colic, arthralgius, the condition of the mouth, muscular paresis, and partial abolition of electro-muscular contractility in the extensors of the arms.

e. The tremor of the opium eaters is accompanied by the following symptoms: livid color of the face, dull expression of the eyes, markedly contracted pupils, considerable emaciation, obstinate constipation, loss of appetite, tendency to vertigo and gloomy forebodings.

The prognosis of paralysis agitans is unfavorable. Strumpell says recovery has never been observed. Men are more prone to shaking palsy than women. It does not often occur until after forty years, but cases have been reported in which the disease appeared about the twentieth year. Drawing near as we now are to the details of our subject, paralysis agitans, we will make mention of several of its complications in the present case.

1. The first complication was ischiatic neuralgia, coming on with a mild prodromata, and slowly increasing in intensity with remissions, followed frequently by long intermissions for years, and meteorology; seemed to have a predilection for the sciatic nerve. This was the condition until about six years ago when the disease became more intense and continuous.

2. During the time of the War of the Rebellion in America he contracted measles, leaving, as a sequelæ, catarrhal pneumonia, which still persists, with dyspnœa, cough and copious expectoration. Recently I sent a specimen of the sputum to the bacteriologist of the State Board of Health for examination, who reported tubercle bacilli, negative.

3. For a number of years the soldier has been suffering from chronic cystitis.

I will now give a full and correct analysis of his urine:

Report on the Examination of Urine.

Physical—*Amount* in 24 hours, 1476 c.c. *Appearance:* Cloudy. *Color:* Amber. *Sediment:* Much; brown. *Specific Gravity:* 1,034. *Mucus:* Much. *Odor:* Ammoniacal. *Total Solids:* 118.83 Gm.

Chemical—*Reaction:* 135 degrees acid. *Urea:* 36.9 Gm. in 24 hours. *Uric Acid:* 1.4 Gm. *Phosphates:* 3.6 Gm. *Chlorides:* 15.8 Gm. *Indican:* Much; red. *Albumin:* 0.012 per cent.

Microscopical—*Epithelia:* Many. Vesical ureter. *Pus:* Many. *Casts:* None.

We now pass to the motor functions. The muscles of the limbs, trunk, and most frequently of the neck, are rigid, and he experiences in them a sensation of cramp; his voluntary are stiff and slow. If tonic tension predominates and the flexors of the neck and trunk are inclined forwards in the vertical position the upper limbs assume a semiflexed position. The thumb is adducted and directed towards the palm of the hand, the movements of the phalangeal and carpal articulations are markedly interfered with and the patient is unable to

carry his hand backwards. In walking, the body inclines towards the hemiparetic side. He now has flexion of the first phalanges, forcible flexion of the second phalanges and slight flexion of the third. The gait precipitate and uncertain. Savage and Sagas have mentioned as a pathogenic sign tendency to run and fall forwards and backwards, which is true in the present case for the last fourteen years necessitating mechanical assistance and is caused by an effort which the patient makes to maintain his center of gravity in the base; is unable to feed himself; has frequent and severe attacks of gastralgia; has pains in his left side and left eye, the vision of which is very imperfect.

As to the treatment since the patient came under my observation over a decade ago, it has been palliative and hygienic: For the sciatica, aspirin; for the dyspnœa, glonoin; for the cough, heroin; for the cystitis, arbutin and hyoscine hydrobromate. His tremor has always been so strong and general, that we have not been able to use the methodical mode for his gastralgia—an occasional dose of morph. sulph. hypodermatically.

Editorial

PELLAGRA.

Recently earnest thought and consideration has been given to pellagra. Our brief experience with this disease in this country has not brought out all the exact information concerning it.

Pellagra is an endemic, constitutional affection, characterized by severe gastro-intestinal and nervous disturbances and accompanied by cutaneous symptoms. The disease has occurred most commonly in Lombardy, the south of France and Spain, especially among the poorer classes in the country districts where the meal of maize is largely used. A study of the disease in the United States has thus far shown that it is widely distributed throughout the south and is present in some localities in the north. The disease makes its appearance upon the skin, and any portion of it may be involved. The face,

neck, arms, shoulders and legs, all of which, among certain classes in the countries where it is prevalent, are habitually unprotected from the sun suffer most severely. Among other predisposing factors are: insufficient food, unsanitary surroundings, worry, mental depression and alcoholism. It begins almost as an erythema in the spring of the year. The epidermis becomes painful, and may peel off in large patches. Vesicles and bullæ may also form. There is very little fever. In the cases in which there is most extensive erythema, grave constitutional disturbances are observed such as hallucinations, convulsions, hypertrophy of the nails and fœtid breath. The mental involvement is considered serious and these cases are usually regarded as the most hopeless.

Dr. C. H. Lavinder of the United States Health and Marine Hospital Service has recently published a review of the subject in the Public Health reports of September 10, 1909. He states that the prognosis must invariably be considered grave, as complete recovery can seldom be assured. Since unhygienic surroundings play a part in the causation of this affection, it is easily seen why prophylaxis should play an important part in the treatment of this disease. Reliable statistics on the subject in the United States are practically limited to asylum cases and give a mortality of 67 per cent. It must be borne in mind, however, that asylum cases are undoubtedly the more advanced and hopeless and for that reason will give a mortality much above the average. Lombroso gives statistics of hospital cases in Italy in 1883 and in 1884, showing a mortality of 13 per cent., whereas Wollenberg gives Italian statistics for 1905 showing a mortality of a little over 4 per cent. The disease resembles tuberculosis, both in that it is an insidious and chronic condition, and that much depends upon early diagnosis and treatment, prognosis of early cases being far better than advanced ones. The importance of this is apparent when it is considered that the disease is an autointoxication; it is probably associated with diseased corn products used as food. On this account maize should be given very cautiously.

In Italy laws have been passed regulating the use and storing of corn and its derivatives, institutions have been established for the care and treatment of pellagra, improved agricultural methods are encouraged, and assistance is given to the sick in many ways by the government.

Concerning the medical treatment of the disease, we must certainly admit that we have no specifics. Lombroso recommends a liberal diet, including meats especially, but points out that this alone is insufficient. In some cases he uses baths and cold douches, believing them to be of benefit in certain cases with nerve and skin manifestations. He also thinks that arsenic is a valuable remedy and that it acts in a certain sense as an antidote for the toxins of the spoiled maize, to which he attributes the disease. Sodium chloride is also of service.

Some authors have reported good results from the use of the newer arsenical preparations of atoxyl and soamin. Transfusion of blood from cured cases to the sick has been tried and may later on prove its value more definitely.

Materia Medica and Therapeutics

ADRENALIN IN TABETIC CRISES.

Dr. Roehmer has employed adrenalin with good results in five cases of tabetic crises. In three of these the crises were of gastric nature, in one case a rectal crisis, and in the fifth case a laryngeal crisis with a gastric complication. The dose in the gastric crises consisted of from four to six drops of a one-per-cent. adrenalin solution in 20 cubic centimeters of water, which was administered per os. In the rectal crisis, after a previous irrigation of the rectum, from three to five drops in 20 to 40 cubic centimeters of water was administered per rectum. These doses were given three times a day. Under the influence of this medication Roehmer observed the disappearance of pain, nausea, and vomiting in four of his five cases. This action set in after fifteen to thirty minutes and continued for several hours. After the administration of adrenalin three times a day, the attack ceased entirely. In the fifth case there was also a mitigation of all the symptoms, but the person under treatment became impatient and demanded an injection of morphine, with the action of which he was familiar. (Semaine Médicale, 1909, No. 2, p. 20.)

ARTHRITIS, SEVERE, TREATMENT OF.

Dr. A. Schawlow speaks highly of the beneficial effects of sulphur waters, in combination with massage, gymnastics, stasis and electricity, in the treatment of the chronic forms. Acute articular rheumatism is usually cured by thirty baths, though the same number of baths and more, taken at home may have no effect. In arthritis deformans and chronic articular rheumatism, the treatment is naturally extended over a longer period, though the good effects do not admit of dispute.

The third group includes chronic progressive arthritis, a much more serious disease, which is not influenced by the salicylates and which progressively affects all the joints and is often fatal. In certain respects it resembles the gonorrhœic form, but no specific germs have yet been discovered. The gouty joint affections are included by the author in a fourth group.

Fibrolysin injections, especially in the more chronic, progressive type, have been found a most valuable adjuvant in the treatment, and have brought about remarkable results when all the other measures failed. As a rule, 30 injections of 2.3 cubic centimeters each were given, one daily, into the gluteal muscles. Improvement was generally noticed only after the twentieth injection. No after-effects were observed, except in a few cases a slight diarrhœa. Even patients with valvular disease and lung trouble stood the injections remarkably well. The swelling of the joints disappears, the active and passive mobility returns, and a most marked change in the general condition can be noticed. Fibrolysin acts as a lymphagogue, increases the hyperæmia and stimulates chemotaxis. As a consequence the firm connective tissue will be softened. (Deutsch. med. Woch., 1909, No. 14.)

CALCIUM SALTS IN EPILEPSY.

Dr. A. P. Ohlmacher, Detroit, has hitherto refrained from publishing his remarkable success following his first

trial of the calcium salts in epilepsy, but now since Littlejohn (*Lancet*, May 15, 1909, p. 1382) has reported results with the same agent, he wishes to supplement it with his case. It was a child four years and four months old, with no heredity of epilepsy, in whom the disease had begun and continued from a month after his third birthday. When first seen he was having from 34 to 73 attacks a month and his mental growth had apparently stopped.

The *grand mal* attacks as seen by Ohlmacher were very severe but never became the typical full status epilepticus. The child had frequent nosebleed follow these attacks and its nurse asserted that she could detect the odor of blood on the breath during convulsions and prior to the appearance of actual hæmorrhage. At the time Ohlmacher had been working on therapeutic immunization where the problem of blood coagulability presented itself, and he had employed Wright's method of measuring the time of blood coagulation and of using calcium salts to fortify a defective coagulability. Accordingly, when his attention was called to the hæmorrhages, he made a blood-clotting test and finding that it was slow in clotting, he began giving calcium lactate in doses of seven to ten grains dissolved in hot water and added to the milk three times a day. This medication has been continued from this first beginning, on June 2, 1907, with no change, except occasionally reducing to one or two doses daily, to the present time. The coagulation time was soon reduced to normal and since the cessation of the epilepsy, three months after commencing the calcium lactate, the child has had occasionally nasal hæmorrhages apparently related to periods of lowered coagulability. At the time he began the medicine McCallum's observation on calcium metabolism as related to parathyroid intoxication and to tetany had not been published, nor had Carle's paper on calcium chloride in therapeutics appeared. Incomplete observations on several additional cases similarly treated tend to confirm the favorable results with the first case. (Journal American Medical Association, August 14th.)

CANTHARIDES IN ACUTE NEPHRITIS.

Dr. E. Lancereaux has employed this remedy in acute parenchymatous nephritis with oliguria and anuria respectively. To children he administers one drop; to adults five to six drops of the tincture of cantharides in a slimy vehicle (about 200 grams of gum mixture). He obtained rapid increase in the amount of urine, disappearance of œdema and very rapid cure.

The name of this distinguished clinician may encourage the cautious adoption of this medication. (Bull. med., No. 13, 1909.)

CHOLINE IN ANIMAL TISSUES AND FLUIDS.

Drs. Mott and Halliburton and others have identified choline as a substance to be found in increased quantities in the blood or cerebrospinal fluid in animals or patients with degenerative processes going on in their nervous systems. W. Webster (Bio-Chemical Journal, London, 1909, IV., p. 117) points out the various errors on which these and similar statements are based, and shows that with our present methods of chemical analysis there is little hope of detecting the very minute quantities—small fractions of a milligram—of choline that might be set free from degenerating nervous tissue, and so get into the circulating blood of man or of animals, in

disease of or after operations on the nervous system. He finds that no choline can be detected in normal blood provided that the lecithin in it is prevented from decomposing; it may be noted that Kaufmann in 1908 could isolate no choline from a liter of cerebrospinal fluid collected from various patients with nervous disease. Webster further finds that the amounts of choline or of potassium salts that might be set free into the circulation by even sudden processes of degeneration in the nervous system would be too small for detection; and that the micro-chemical reactions given for choline occur irregularly but equally freely by both normal and pathological cerebrospinal fluid, while it is doubtful whether any of the micro-chemical tests in use are specific for choline. (The British Medical Journal, July 31, 1909.)

CREOSOTE IN PULMONARY TUBERCULOSIS.

Dr. Beverly Robinson states that beechwood creosote, internally and by inhalation is valuable in pulmonary tuberculosis. Internally the best formula is: Beechwood creosote (Merck's), 6 drops; glycerine, 1 ounce; rye whiskey, 2 ounces; dose one dessertspoonful every two, three or four hours, best diluted with a little water.

The best formula for inhalation is: Equal parts of beechwood creosote (Merck's), alcohol, and spirit of chloroform. Use 10 drops on the sponge of a perforated zinc inhaler. Repeat a few drops as required. The inhaler should be used frequently; at first for a few moments each time; later (after a week or more) it may be used half an hour or an hour at a time. Finally, it may be used almost continuously during the day and frequently all night, without interfering with sleep. Occasionally it is necessary to lessen the proportion of creosote, in the inhaling formula at least, for a while and until the patient is accustomed to the use of the inhaler. Creosote should always be given in solution. The author states that patients following out his plan will be relieved of their unpleasant symptoms. It will help cure a large number and will hurt none. It is the best adjunct to fresh air, sunlight, good food and rest. (American Journal Clinical Medicine, July, 1909.)

DIGIPURATUM ON THE CIRCULATORY SYSTEM.

Dr. J. Szinnyei tested the action of digipuratum thoroughly in 20 cases, and concludes that it is an absolutely reliable preparation of digitalis. It is indicated in every decompensation, where there is yet time for oral medication, owing to the fact that it is uniform in action and contains both digitalin and digitoxin, but is free from digitonin. In 11 cases where digipuratum was used, free diuresis set in on the second day; in four cases the amount of fluid excreted exceeded that ingested on the first day. In three cases the free flow of urine began on the third, in two cases on the fourth day, and in one case each on the fifth, sixth and seventh day.

By carefully comparing the pulse frequency with the diuresis, it may be noticed that occasionally the pulse will slow down as early as the second or third day, whereas the amount of urine, though larger than on the preceding day, will not yet correspond to the amount of fluid introduced. It seems that this observation will give valuable information as to the condition of the heart muscle. The slowing of the pulse and the onset of a free flow of urine are simultaneous if the heart muscle is still in good condition,

while with a weak myocardium the frequency of the pulse will diminish first. There seems to be a definite relationship between the condition of the myocardium and the appearance of a free flow. (Orvosi Hetilap, 1909, Nos. 17-22.)

DRY HEAT IN GYNECOLOGY.

Dr. Gellhorn says that the employment of hot-air boxes or chambers is invaluable in the treatment of chronic exudates, irrespective of their location in the parametric tissues or in the pelvic peritoneum. The results obtained with hot-air in this affection can not be approached by any other method. The prompt objective improvement is intensified by an almost instantaneous relief from pain. The hot-air therapy has also been very promising in the treatment of certain menstrual disorders, notably amenorrhœa. Furthermore, hot-air treatments have been found exceedingly useful in a number of conditions arising after operations, such as infiltration of the incision, post-operative fistulæ, paralysis of the intestines, etc., with growing experience, the sphere of usefulness for this new mode of treatment is likely to extend still further. As its application is quite simple, it is equally suited to hospital or private practice. (American Journal of Obstetrics and Diseases of Women and Children, July, 1909.)

GELATIN IN THERAPEUTICS.

Dr. O. Wandel remarks that gelatin is found useful in lung, stomach, bowel, uterus and other hæmorrhages, but it is also valuable in constitutional affections of the blood entailing a hæmorrhagic tendency. The technique at Quincke's clinic at Kiel aims to destroy anærobic spores and protect the gelatin from external influences. This is accomplished by sterilizing a neutralized 10 per cent. solution of gelatin in an Erlenmeyer jar with a layer above the fluid paraffin to keep out oxygen. A long glass tube reaches to the floor of the jar, the upper end capped with a rubber tube and stop cock. A larger short tube in the stopper, filled with cotton, allows the entrance of air. The whole is sterilized in a linen bag in steam for forty minutes at 100 degrees C. (212 degrees F.) After cooling, it is kept in the incubator at 37 degrees C. (98.5 degrees F.), then sterilized again for 30 minutes the following day. The gelatin thus sterilized is poured into vials containing 50 cubic centimeters, which are then fused. In a number of tests the gelatin was inoculated with garden soil and tetanus spores, but after this sterilization inoculation of guinea-pigs gave negative results. (Therapie der Gegenwart, June, 1909.)

HYPOPHYSIS EXTRACT UPON THE BLOOD-VESSELS.

Dr. Pal prepared an extract from the posterior lobe of the hypophysis, 1 cubic centimeter corresponding to 0.01 of the dried substance. About two per thousand of the efficient substance were contained in the extract. Intravenous injection was followed in the first place by a brief transitory lowering of the blood-pressure; passing into a moderate rise of pressure. The same phenomenon could be determined over again by repeated infections. The hypophysis extract furthermore showed a well-marked diuretic action. The examination of excised arteries from beeves, in Ringer's solution to which hypophyseal extract had been added, served to show that the carotid, mesenteric, and femoral artery underwent shortening (as under the addition of adrenalin), whereas the venal arteries become

lengthened (opposite findings under addition of adrenalin), at least in the peripheral portion towards the renal pelvis. The findings upon the coronary arteries were not entirely uniform. The pupil of the excised eye of frogs is dilated by hypophyseal extract as well as by adrenalin. (Wiener Med. Wochenschrift. No. 3, 1909.)

IODIPIN, USES OF.

Dr. E. Lustwerk prefers the subcutaneous administration of iodipin. The following cases were treated by him: 1. Gonorrhœic sciatica. The sciatic nerve was tender and palpable after several attacks of gonorrhœa. After five injections, each of 10 cubic centimeters of 25-per-cent. iodipin, there was much improvement. The patient was cured after ten more injections. 2. Syphilitic optic neuritis. Four hundred and fifty cubic centimeters of iodipin, given within three months (15 cubic centimeters every other day) brought about a marked subjective and objective improvement, and also favorably affected an existing myocarditis. 3. Tabes dorsalis. The most pronounced symptoms were the lancinating pains. After 25 intramuscular injections of 15 cubic centimeters each, the pains, hyperæsthesia, and ataxia had disappeared, so that the patient could again take up his vocation. 4. Struma. Syrup of iron iodide and applications of iodine were ineffectual, but 50 cubic centimeters of iodipin, injected in 5-cubic-centimeter doses every day, led to complete disappearance of the tumor. 5. Acute, traumatic gonitis, in a patient sixty years old, was cured by 2 cubic centimeters injected every other day near the knee for 20 doses. 6. Empyema. The suppuration could be checked by evacuation of the pus, but a cure was not established until several doses (15-20 cubic centimeters) of 25-per-cent. iodipin had been injected. 7. Asthma bronchiale. The usual mixture relieved the attacks, but iodipin given in tablet form seems to have cured the disease. 8. Arteriosclerosis. All symptoms improved after 10 cubic centimeters of iodipin had been injected every other day for one and one-half months. 9. Transverse dorsal myelitis. 20 cubic centimeters of iodipin, injected daily for six weeks, and every other day for two more weeks, completely cured the patient. (Deutsche. med. Zeit., 1909, No. 42.)

POTATO DIET IN OBESITY.

Dr. G. Rosenfeld states that the main features of this treatment are: the necessary amounts of albumin, prohibition of fat, diet scanty in calories, but with plenty of carbohydrates, especially in the form of potato, with large amounts of cold water for the beverage, rest in bed and frequent meals. The food must be such that fills the stomach and thus satisfies the appetite with small amounts of nourishing substances. Potato, water and soups fulfill these requirements and aid in reducing the fat. Every quart of cold water (10 degrees C. or 50 degrees F.) ingested causes the consumption of 27 calories to bring it to body temperature—that is equivalent to the consumption of 3 Gm. fat. As "filling" foods must be selected, fats should be avoided. Small, frequent meals prevent the development of a too hearty appetite, as also repose, especially bed rest. The diet, therefore, is, for the first meal: Tea with saccharine and 30 or 40 Gm. of rolls with marmalade or the like; the second meal is 10 Gm. of cheese and water; the third, 100 Gm. apple and water; at noon, 2 glasses of water, 1 or 2 plates of soup with potatoes and vegetables, lean meat and

salad without oil. During the afternoon, tea with saccharine, 6 prunes and water; later 100 Gm. apple. For supper 2 eggs and potato salad or lean meat and vegetables. The principal advantage of this diet is that the patients do not feel the restrictions and do not become irritable and nervous. The only by-effect noticed was occasionally backache, which probably was due to the change in the attitude of the spine as the abdomen lost its fat. The patients thrive on this diet, and feel better in every respect, as he shows by a number of examples. Caution is necessary with diabetes, and the amount of fluids ingested had better be kept below 2 liters if there is a general dropsy. It often requires more than six months to bring the patient down to his normal weight, and it is wise to keep up this diet a few days in each week to maintain the benefit. (Archiv. für Verdauungs-Krankheiten, June, 1909.)

Book Reviews

BULLETIN OF THE LLOYD LIBRARY of Botany, Pharmacy and Materia Medica. Cincinnati, Ohio: J. W. & C. G. Lloyd. Reproduction Series, No. 7. Life and Medical Discoveries of Samuel Thomson and a History of The Thomsonian Materia Medica, as shown in "The New Guide to Health," (1835), and the Literature of that Day, including Portraits of Samuel Thomson; Facsimile of Thomson's "Patent" to the Practice of Medicine; the Famous Letters of Professor Benjamin Waterhouse, M.D.; the Celebrated "Trial of Dr. Frost," and Other Features of a Remarkable Epoch in the American Medical History.

This bulletin gives the reader a very good picture of the knowledge of the practice of medicine at the beginning of the nineteenth century. In it are portrayed the narrative of the life and medical discoveries of Samuel Thomson, a famous and successful physician at that time. It is well worth reading, as it shows the passion, dogmatism, the vituperation, of the period.

THIRD REPORT OF THE WELLCOME RESEARCH LABORATORIES at the Gordon Memorial College, Khartoum. Andrew Balfour, M.D., B.Sc., F.R.C.P., Edin., D.P.H., Camb., Director; Fellow of the Royal Institute of Public Health, the Society of Tropical Medicine and Hygiene, and the Society for the Destruction of Vermin; Member of the Incorporated Society of Medical Officers of Health, and the Association of Economic Biologists; Corresponding Member of Société de Pathologie Exotique; Medical Officer of Health, Khartoum, etc. Published for Department of Education, Sudan Government, Khartoum, by Ballière, Tindall and Cox, 8 Henrietta Street, Covent Garden, London, 1908. Depot for U. S. A.: Toga Publishing Co., 45 Lafayette Street, New York.

This report is the result of an enormous amount of labor spent in research work at the Gordon Memorial College. It contains 480 pages of detailed records and papers by Sudan officials on original investigations, and many interesting experiments, principally connected with tropical medicine. The lines along which this valuable research work has been done are chemical and bacteriological.

An especial feature of this volume is the review of the most important recent advances and discoveries in tropical and veterinary medicine, bacteriology and hygiene. Among the contents worthy of mention are:—

"On Some Interesting Reptiles Collected by Dr. C. M. Wenyon on the Upper Nile;" "Turtles, Lizards, Chameleons, Snakes;" "Animals Injurious to Farm and Garden Crops;" "Animals Injurious to Stored Goods and Timber;" "New Mosquitoes from Sudan;" "Medical Practice and Superstition Amongst the People of Kordofan."

This report will prove of the utmost benefit to those interested in tropical research. The volume is profusely illustrated and includes many valuable plates.

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Original Articles

Department in charge of J. MADISON TAYLOR, A.M., M.D.

ACHYLIA GASTRICA.

BY A. L. BENEDICT, M.D.,

BUFFALO.

WE think largely in words, hence a word or technical term is of great assistance in focussing our attention and crystallizing our knowledge. On the other hand, if our conception is inexact or too arbitrary, we shall be misled not only theoretically but practically.

Passing the etymology of the term, achylia, in an uncritical spirit, we should remember that it, as well as hypochylia and hyperchylia, is not limited to the stomach, but applies to all glands. Even more broadly, any organ may functionate too much or too little, or may cease to act.

Neither theoretically nor practically, can we draw a line between hypochylia and achylia. Occasionally we find gastric contents which do not give a lilac band with alkaline copper solution; which, reinforced with hydrochloric acid and incubated, do not appreciably dissolve coagulated albumin; which do not coagulate milk. I have never found a case which did not, after filtering off the albumin coagulated by heat, give a considerable precipitate with phosphomolybdic or phosphotungstic acid or other reagents for albumoses and peptones generally. Just how reliable these tests are, in the sense of supporting absolute statements as to the presence or absence of gastric digestion, has not been fully determined. Moreover, the degree of gastric function varies somewhat in the same case at different times.

It is generally stated that the intrinsic secretory functions of the stomach are three: the formation of HCl, of pepsin, and of rennin. But, apparently, the maltose formed by ptyalin digestion in the stomach, is changed into dex-

trose in passing through the gastric wall, and, by the way, very little of this or anything else is actually absorbed through the stomach. There has also, rather recently, been demonstrated a slight splitting of fats within the stomach but scarcely enough to warrant the conception of a definite gastric lipase, for such a change might be expected to occur to some degree in any moist, warm and not entirely sterile chamber. It has sometimes seemed to me, even from the comparatively superficial view of the clinician, that the amount of sugar found in chyme deficient in HCl and peptic activity, might indicate something more than the negative fact that ptyalin digestion was not so much interfered with as normally, but an achylia in the limited sense of failure of the inverting ferment has not been actually demonstrated and, indeed, to do so would require very elaborate qualitative and quantitative chemic study of an experimental as well as of a clinical nature.

Hence practically and probably intrinsically, the problem of achylia may be limited to peptic digestion of proteids. By common consent, the hydrochloric acid factor is omitted from the definition though, so far as I know, any considerable secretion of HCl, even if no free hydrochloric acid remains in the chyme, is incompatible with the idea of achylia gastrica. In other words, cases of achylia gastrica are clinically a sub-group of cases of achlorhydria. There is, however, no *a priori* reason why there should not be a complete, or practically complete, failure of the chief, peptic cells of the gastric tubules, while the parietal or oxyntic cells preserve their function of secreting HCl. So far as I am aware, no such case has been recorded but there seems to be no theoretic demonstration of its impossibility.

An important question in the definition of achylia or hypochylia is as to the identity or distinction of pepsin and rennin. No ferment has ever been isolated. It is *a priori* strange if not actually improbable, that there should be a ferment for one particular kind of food. If all raw, soluble proteids were coagulated by gastric juice, the individuality of rennin would stand out more clearly, but this is not the case. Or if rennin action were conspicuous in infants and in adults who continued the habit of taking raw milk and were lacking, or essentially weak, in those who had abstained from milk for a long time, its specific nature would be more readily conceivable. The pancreatic and intestinal juices also coagulate caseinogen. Under normal conditions, the "factor of safety" would scarcely require this triple provision for a single constituent of a single food stuff and, from rather rare and imperfect observations, I am inclined to believe that it fails in the very cases in which it is needed, on account of achylia gastrica.

I am well aware of reports showing the occasional independent occurrence of milk coagulation and of solution of albumin, by gastric filtrates. I have made such observations myself but, so far as personal experience is concerned, have become convinced of an error. Many samples of milk, apparently fresh and declared not to have been treated by the milkman, do not coagulate with active gastric filtrate and various errors of technic might occur in clinical tests of solution of albumin. Laboratory workers, at different times, have stated positively that pepsin and rennin were identical and that they were dis-

tinct. The general principles of the action of precipitants in general or of ferments in particular, upon colloid solutions, at least do not require the hypothesis of a separate milk-curdling ferment.

It is possible that such a ferment, or ferments, may be definitely established by further research. However this may be, in the vast majority of cases the peptic and the milk-coagulating function rise and fall together and are never deficient to any marked degree when there is even a moderate secretion of HCl.

Thus, the definition of achylia gastrica hinges on the absence of pepsin. Furthermore, if by washing the stomach with HCl or by administering it by mouth a proteolytic gastric juice is obtainable, we may conclude that pepsinogen has been formed already but lacked the developing action of HCl. In other words, an apparently demonstrated case of achylia which yields readily to acid treatment can not be considered genuine.

Achylia gastrica is clinically divisible into acute functional and chronic, more or less demonstrably, organic types, culminating in anadenia or atrophy of the gastric mucosa, after a prolonged gastritis. As for most, if not all, diseases the term functional is purely a matter of convenience. Not even a new ultra method of histologic examination is necessary to demonstrate an organic lesion. A condition may also be functional, perhaps even in the strict sense, so far as the local manifestation is concerned, but ultimately organic as to the nerve centers, or some organ through whose faulty action a toxæmia develops.

The division of achylias into acute functional and chronic organic is merely approximately correct and various subtypes may be made out.

Perhaps the simplest type of achylia is due to chilling, fatigue, etc., and is often nocturnal. In such cases as are discovered, gastric stagnation usually occurs and the stomach contents are furnished by spontaneous vomiting. As they are often quite acid through fermentation, if not examined, the diagnosis of hyperchlorhydria may be made. Indeed, it would appear that the general opinion as to the prevalence of hyperchlorhydria is due to diagnosis by guess. Such cases are transient, and the treatment is palliative and prophylactic, and of the simplest nature. Sometimes a hot brick in the bed is all that is necessary.

Similar acute functional achylia may be noted in asthmatic crises and, doubtless, if it were practicable to make the requisite examinations would be found very frequently, perhaps quite regularly, in mental and physical shock, after anæsthesia, in acute fevers, etc. In uræmia, acid auto-intoxication, intestinal putrefaction with marked indicanuria and other more or less exogenic toxic states, achylia may occur. The toxic gastritis cases, of acute and subacute degree are pretty regularly marked not only by deficient HCl secretion, as stated in text-books, but by more or less typic achylia. Certain exogenic poisons cause lesions while others, as well as endogenic poisons, do not, at least not unless long continued. Still, an achylia due to a toxic condition of any kind does not exactly correspond to the conception of functional disturbance.

A very practical obstacle to our understanding, or even detection, of such cases is the reluctance to pass the tube after a test meal, in a case of typhoid,

after an abdominal section, during a paroxysm of asthma and in the various toxæmias and exogenic poisonings. Hence we must form our ideas largely from matter accidentally furnished by vomiting, in occasional instances. In all such cases, the therapeutic indications are mainly along the lines of the underlying affection and usually the digestive indication is either to keep the stomach empty or to administer foods which will pass the stomach with as little trouble as possible and be digested in the intestine.

The ordinary type of chronic achylia, usually considered organic, may be best discussed by an illustrative case:—

A. F. D., No. 101 of year 1905-6, aged 37, male, mechanic at light work, gave a history of stomach trouble of 6 years' duration, somewhat intermittent and apparently due to nervous strain. His principal complaint was that the food seemed to lie heavy in the stomach—a common, vague and not very reliable symptom. He would belch gas and occasionally eructate gastric contents, which were never either sour or bitter. On physical examination, he was found to have a mitral regurgitant murmur, with some cardiac enlargement and good compensation. (No history of rheumatism except slight pains in knee nor other apparent cause.) The liver was small, the area by auscultatory percussion extending only from the fourth to the eighth rib, and there were the dendritic veins at the diaphragmatic level, which the writer described several years ago as a valuable sign of hepatic sclerosis. There was also a tender, palpable appendix. The amount of chyme after the standard test meal of 50 grams of bread, 5 of butter and 250 of water, was 110 cubic centimeters, not much more than normal. The total acidity was 9 degrees, there was no free HCl and the alizarin reaction was already present without neutralization, indicating that the acidity was practically entirely due to organic acids. There was no starch nor erythrodextrin, but an abundance of sugar. The peptone ring with alkaline copper solution was absent. On boiling, there was a trace of albumin, and on adding phosphomolybdic acid and centrifuging, a 3 per cent. bulk precipitate. Normally or even in simple cases of hypochlorhydria, this last precipitate usually exceeds 20 per cent. Milk was not coagulated. Albumin digestion, after adding HCl, negative.

This patient did not have gastric stagnation to any appreciable degree, although there was some gastric mucus. Treatment consisted in the attempt to stimulate and reinforce gastric secretion by salty foods, ammonium chloride, strychnine and HCl. Locally, lavage and gastric spraying with menthol in purpetrol (pure mineral oil) were employed. Various detergents were employed during lavage, as soda, borax, hydrogen peroxid.

At the end of two and one-half months, the patient felt perfectly well but nothing had been accomplished toward relieving the achylia. Occasional reports of favorable subjective condition, state of nutrition, etc., have been received.

In some such cases, anæmia is found so that, a few years ago, it was thought that in achylia we might have an explanation of pernicious anæmia. This patient manifested no true anæmia though the hæmoglobin was only 80 per cent. However, the cells appeared normal and the blood was not examined

after the subjective improvement had become pronounced, as the patient wrote that he was satisfied with results and did not report for further examination. Marked anæmia occurs in achylic cases just often enough to confuse us as to the mutual or common etiologic relations.

In favorable cases, intestinal digestion undoubtedly proceeds normally, and, indeed, physiologically, human gastric digestion does not amount to much quantitatively. Other cases of this type have been discovered quite accidentally in making a routine gastric analysis on account of some intercurrent digestive disturbance. The favorable course that they take is the chief reason for our lack of definite knowledge concerning them. How long has the achylia existed before its discovery? How long does it continue after its discovery? Is the condition functional, that is, due to defective innervation or is it due to congenital failure of development or to anadenia, that is, an obliterating chronic gastritis, or to some other lesion? The first question obviously cannot be answered until a routine examination of apparently healthy persons is made. Patients usually do not allow the second question to be answered, but a few cases have been observed sufficiently long and with a sufficient number of examinations to render it probable that the gastric condition is permanent, at least in many cases. As to the third question, we might jump to the conclusion that, in the present case, there was a chronic gastritis due to portal stagnation, but such a conclusion would be fallacious. In many cases, there is no evidence of chronic gastritis and in many others with hepatic sclerosis and gastric mucus, there is no achylia. To secure necropsies under proper conditions, on such cases, would require years of waiting and a lucky chance. As to microscopic examination of cells obtained by intubation, it seems to me quite on a par with diagnosing skin lesions by getting exfoliated epidermis from the bath tub. The stomach is constantly throwing off epithelium, which we find in a more or less changed condition. Indeed, the mechanic and thermic and chemic insults which a civilized (?) diet inflicts on the stomach, render localized catarrhal lesions quite the rule.

That there is such a condition as anadenia cannot be questioned, though the term is not an ideal one. That it is associated with more or less absolute achylia cannot be denied. But that it is typic of chronic achylia in spite of which general good health is restored, is *sub judice*.

Achylia or, at least, very marked hypochylia is characteristic of advanced gastric cancer of almost any type, though obviously it is not diagnostic in any true sense. In this connection, the personal confession may be made of an entire inability to locate the lesion according to special failure of HCl, peptic power and milk coagulation.

A rather scattering series of examinations also shows that achylia may occur in tuberculosis, gall-stones, chronic nephritis, myxœdema, cancer at a distance from the stomach, and, in short, in almost any depressing disease. Such achylias are presumably really functional, so far as the stomach is concerned, and probably more or less intermittent.

In Addison's disease, achylia gastrica may occur and, in spite of our inability to demonstrate satisfactorily achylia pancreatica and achylia intes-

tinalis, when we find gross evidences of intestinal indigestion and the patient emaciates and apparently dies largely of starvation in spite of abundant or reasonably full ingestion it is obvious that there has been in a practical sense, achylia digestiva totalis.

There is a general impression that gastric ulcer depends upon and is associated with hyperchlorhydria. Scrutiny of the evidence shows that it is inadequate. I have never dared submit acute cases of ulcer to intubation. In chronic gastric ulcer, especially of the angiosclerotic type, there is usually hypochlorhydria, sometimes achlorhydria and occasionally achylia. On the other hand, in a very marked case of this nature which terminated by rupture into the peritoneum the peritoneal contents post-mortem gave a distinct lilac ring with alkaline copper solution. Hæmorrhagic gastritis with minute ulcers, dependent on hepatic sclerosis, is usually close to achlorhydria and tends toward achylia.

In the *New York Medical Journal* of August 7, 1909, I have discussed, somewhat at length, Knapp's conception of Insufficientia Pylori. While, from the standpoint of physiologic experimentation, Cannon seems to have shown that HCl is the factor which causes the pylorus to relax and discharge the chyme into the duodenum, from the practical clinical standpoint, just the opposite is true. That is to say, without any infallible rule obtaining, an excess of HCl is usually associated with more or less ischochymia, and the cases in which a test meal slips through the pylorus rapidly are hypochlorhydria. Knapp has charged Einhorn with erroneously considering insufficientia pylori as achylia gastrica. The two conceptions are clearly too different even to be contrasted. Whether the slipping of unirritating, nearly neutral chyme through the pylorus deserves a Latin name and to be considered as a disease or definite functional disturbance, is very doubtful. In my own experience, appointments for the extraction of stomach contents prove disappointing in about one case in five, although I use a large tube with a bulb, and prove the stomach empty or practically so by introducing and removing water, when the contents are not obtainable after a reasonably patient effort to extract them. In such cases, I simply increase the bulk or nature of the test meal and try again. It is only occasionally that such cases show any consistent weakness of the pylorus or motor excitability. Usually, the second attempt proves successful, occasionally one must try several times.

A very recent case may be cited as an example, the commonness of the occurrence and my scepticism as to the existence of any intrinsic lesion or functional failure having prevented the accumulation of any statistics. Mrs. J. D., No. 21 of 1909-1910, yielded no chyme an hour after a test meal of two slices of bread and butter and a glassful of water, except that lavage showed a few crumbs remaining. Repeating the test with four slices of bread and butter and a glassful of water, 200 cubic centimeters were obtained. The total acidity was 9 degrees. HCl was entirely lacking, there being not even an orange tint with dimethylamidoazobenzol. There was only a trace of lactic acid. There was a faint lilac band with alkaline copper solution, denoting peptonized proteid, but the precipitate with phosphomolybdic acid amounted to 18 per cent.

by bulk, indicating pretty fair digestion. However, the peptic power was nearly exhausted as, after adding HCl to make a 30-degree solution (*i.e.*, 30 per cent. of decinormal) and incubating at body temperature for 9 hours, there was very slight solution of coagulated albumin. This case may be considered one of marked hypochylia.

It should be distinctly understood, however, that cases of hypochylia and achylia do not by any means always show what Knapp terms insufficientia pylori nor, on the other hand, can we safely prophesy achylia from the fact that the stomach is empty an hour after the test meal, though in the latter event, we shall usually find a marked deficiency of HCl and, in this group of hypo- or achlorhydric cases, we shall find most of our cases of marked hypochylia or nearly absolute achylia.

As to treatment, achylia and marked hypochylia may be considered as essentially identical. Cases of the acute, more or less typically functional, type should be fasted unless there is urgent need of nutrition, when the endeavor should be made to spare the stomach and rely on intestinal digestion, rather than immediately to restore the gastric function.

Chronic cases like that of A. F. D. should be treated, as outlined, with the hope of restoring gastric function. If, after a couple of months, this shows no sign of recuperation but subjective improvement is marked, we should comfort ourselves with the thought that, after all, the intestine is the main digestive and absorptive organ and worry neither the patient nor ourselves with the fear of starvation. Indeed, in many cases, it is not even necessary to be particular about the diet though obvious indiscretions should be discouraged.

If, in addition to the achylia, there is marked anæmia, this should be treated to the best of our ability, remembering that such anæmia is not due to lack of iron in the food and, hence, that medicinal iron preparations are not especially indicated.

In Addison's disease, myxœdema, chronic gastric ulcer and all sorts of conditions of general depression in which the patient emaciates and is evidently tending toward starvation in spite of adequate ingestion, the prognosis is grave. Dextrose should be given in considerable amounts unless there is diabetes. Sometimes a careful study will show what kind of organic nutriment is best digested and assimilated. Pepsin and pancreatic ferments are not usually successful, though theoretically indicated. Vegetable digestants seem to be more satisfactory though they do not necessarily fulfill our desires. Possibly there is a defect in absorption or metabolism for which we have no known remedy. Predigested foods are a disappointment, whether administered by mouth or by the rectum. Dextrose is predigested carbohydrate. Glycerin and soaps are predigested fats but are not practically available. Artificial peptones are toxic. Evidently, we do not understand thoroughly the physiology of digestion, or we interpret as "indigestion" failures of absorption and secondary alterations of nutriment.

It is scarcely necessary to say that ordinary hygienic and general restorative measures should be applied and that we should treat underlying condi-

tions. Very frequently, failure of nutrition, not always accompanied with typic achylia, is due to thyroid failure whose symptoms are not sufficiently marked to attract attention. With due care to avoid increasing the thyroid secretion in a typic hyperthyroidism, it is a good rule of thumb to administer thyroid extract to any elderly person, especially a woman, who shows vague signs of malnutrition. Adrenalin is usually without value in Addison's disease, but it is possible that the entire adrenal gland may prove useful. In some cases, the Smith lymph, which is essentially a testicular and lymphatic extract, gives good results. We must be on the lookout for indicanuria and all sorts of toxæmias and, in general, must try to treat, after discovering, an underlying cause or contributory factor.

DEMENTIA PRAECOX CAUSED BY DENTAL IMPACTION.

By HENRY S. UPSON, M.D.,

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Among the insane and other so-called degenerates there are often found such physical peculiarities as irregular teeth and the high-arched palate. Statistical study has given much information in regard to the occurrence of these so-called stigmata, none at all of their significance. One explanation of this curious association seems to the writer to be furnished by his investigations of the past two or three years into the rôle of dental diseases in causing nervous and mental disorders.

Of 58 cases examined by skiagraph, in about half impactions were found, that is, teeth so angled against their neighbors as to be possible irritants. This lesion has been known as an occasional cause of intense pain, but has never before been studied clinically in its other relations.

The patients in whom impactions were found suffered from a great variety of nervous disorders, ranging from headache, habit spasm, restlessness, epilepsy, through insomnia to melancholia and dementia præcox.

Dental treatment in these cases has been carried out by removal not only of the impactions but of all irritations of teeth and jaws, as the irritation caused by impaction differs only in degree, not in kind, from that of other dental lesions.

The therapeutic results have thus far been encouraging. They have been more decisive, that is more truly and completely curative, in the severer mental disorders, and in those cases in which the more marked dental lesions have been found. The best results have been attained in severe cases of manic-depressive insanity and dementia præcox. Of eight such cases seen in consultation, in whom thorough dental treatment has been carried out, including the extraction of one or more impacted teeth, six have recovered mental health, one is convalescent, and one much improved. Of these patients, five were cases of dementia præcox, of whom four have recovered and one is convalescent.

Details of these cases have been published elsewhere.[1] It is sufficient to say here that such results, if confirmed by the subsequent work of others, indicate the direct dependence of at least a large proportion of cases of manic-depressive insanity and dementia præcox on pure irritation, often situated in the teeth and jaws, and their ready curability when dealt with early.

These mental cases diverge so widely from the conditions commonly apprehended as reflex nervous disorders, that it may be desirable briefly to discuss the mode of reaction of the sensory system especially in view of the fact that in none of these cases has impaction caused local pain, and in few of them pain of any kind. Pain has been absent also in many cases due to caries and alveolar abscess. It is fair to suppose that these cases are not exceptional, but in conformity with the usual action of the sensory system. It should be possible to work out a formula of sensory action, not only by close study of dental lesions, but by instances taken from familiar processes of disease of wider range.

The obvious fact of sensory action is that stimulation causes pain which increases *pari passu* with the irritation. That there are divergences from this rule is seen, for instance, in malaria and typhoid fever. The irritant poisons of these diseases cause headache and backache. With the irritation at its height the pain ceases, and delusions and hallucinations supervene. That is, reaction to these irritant toxins begins in pain and ends in definite mental aberration.

Certain special kinds of irritation of the skin cause itching and tickling. Both of these sensations are accompanied by more of emotion than of pain, and finally a point is reached near, if not actually within, the confines of insanity.

Hunger and thirst are sensations akin to pain. Deprivation of either food or water causes suffering by irritation. Delusions and hallucinations supervene, and the suffering is replaced by delirium.

Gall-stones probably cause as much anguish as do any known lesions. With increase of the irritation there results a numbing of the sensation and unconsciousness. The very intensity of the process finally withdraws it from the field of conscious reaction.

A man is run over by a locomotive, and both of his legs mangled and severed. With nerves and nerve-ends without number crushed and lacerated, he often lies free from pain, either in delirium or melancholy, or with an exaltation bordering on mania; peripheral irritation has overwhelmed the mind.

Chronic processes of disease give a wider range of nervous reaction, often, like some of the acute processes, painless from the beginning. The sufferer from consumption or from organic heart-disease becomes depressed, or, in some cases, excited and maniacal, delusions are developed, and the closing scene is saddened by violent insanity.

The emotional and mental results of digestive disturbances are usually more trivial, but at times serious and threatening. Uterine and ovarian disease

1 Cleveland Medical Journal, Aug., 1909.

and sagging kidneys send to the asylums many victims in whom the total lack of pain or other localizing symptom makes the causative lesion obscure, or in whom such symptoms are slight and therefore neglected.

These few examples have been purposely selected so as to include a wide range of lesion, both in location and in kind. It should be possible, by eliminating features not common to all of them, to arrive at the determining factor in the causation of mental disturbances alike in the sane and the insane. This common factor, whether the irritant is mechanical or chemical and whether active in the skin or in the viscera or other deep tissues, is peripheral irritation. Experiment shows that nerve-cells cannot be stimulated centrally by any toxic or other irritants whatever, which leads inevitably to the same conclusion.

After even so brief a review as this, of painless and painful reactions, it is unnecessary to account further for the fact that the lesions underlying the severer psychoses are usually painless. Nowhere in the body can painless sensory irritation be studied to so good advantage as in the teeth and jaws. In the teeth, in spite of their rich nerve supply, pain is comparatively rare, although caries and other diseases are so common as to be almost universal. Another fact contributes to the greater potency of dental irritation, the fact that pressure on sensory nerve structures is at its maximum in these rigid, highly innervated tissues. Stimulation by pressure is especially productive of emotional and mental phenomena, and impaction, exostosis and alveolar abscess develop the possibilities of emotional reaction to a high degree.

The causative relationship between lesion and resultant symptoms has been made especially clear by the fact that, in the majority of these cases, improvement, until then conspicuously absent, has begun within a week or two after the operation. Such a sequence is peculiarly convincing, and it is made more rather than less so by the fact that in several instances sharp relapse has followed renewal of irritation by accident or dental interference. In several cases I have watched the development of an alveolar abscess and the simultaneous evolution of an acute psychosis, which was finally relieved by the extraction of the offending tooth.

Taken together these experiments constitute a mass of evidence comparable with that furnished by inoculation experiments in tuberculosis and tetanus.

Dementia præcox, then, is a product of purely peripheral irritation. As dental irritation is common at all ages, there must occur consequent mental disorders in the young and the very old, varying from the dementia præcox type as the reaction-mode varies with age. The predominating type of lesion also is determined by the age of the patient.

The psychoses of senility, when dental in origin, are usually caused by caries, abscess and exostosis. In children, on the other hand, recent experiment has convinced me that imbecility, whose symptoms run so close a parallel with dementia præcox that a few cases of acute onset have lately been described as *dementia præcocissima,* has as its underlying lesion, in many instances, impactions, usually multiple, and capable of causing the terrible mental ravages found in this condition.

The prognosis in dementia præcox has been sufficiently indicated above. In patients seen early, in whom existing irritations are thoroughly removed, the outlook is good, without regard to the family history, and even in the presence of severe symptoms. In the psychoses of the aged and the dementia of imbecility in childhood the problem is still to be worked out by early and careful removal of the lesions already shown to be the noxious agents in the psychoses of adolescence.

CATARACT.

(Two Demonstration Lectures.)*

By CHARLES A. OLIVER, A.M., M.D.,

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(FIRST LECTURE.)

This afternoon we shall consider the important subject of cataract.

The term, which signifies either a partial or a complete opacification of the crystalline lens, is derived from a Greek word "to fall down."

Practically, there are two varieties of the disease: that which is secondary to other ocular disturbances; and that which is symptomatic of general disorder.

The objective signs and symptoms vary in accordance with the variety of the disturbance, being mainly dependent upon the character, the density, and the extent of the lenticular opacity.

In the immature forms, the anterior chamber becomes shallower than normal, this being due to a forward protrusion of the iris, produced by a swelling of the lens. In hypermature cataract, the anterior chamber may become deep. In mature cataract, the chamber is practically of normal size.

In fairly-advanced cases, the pupillary area generally assumes a dull gray tint or a glistening white appearance, in accordance with the age and the character of the opaqueness of the lens material; a condition, however, which needs careful clinical confirmation before any certainty as to diagnosis can be vouchsafed. At times, the pupil may appear almost black or brown in tint. In some indeterminate cases of this type, the catoptric test is of value. Very rarely, glistening polychromous, crystalline masses may stud the pupillary area.

Study of the eyeground in the incipient stages of the disease will frequently, especially in comparatively young and ametropic subjects, reveal coarse local changes connected with the uveal tract. In all cases, except when contraindicated, and in all stages, mydriatics should be resorted to, in order to make as thorough a study of the intraocular conditions as possible. Vision is always disturbed to a greater or a less degree, according to the extent, the nature, and the situation, of the opacity.

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* Delivered before the Junior and Senior Classes in the Woman's Medical College of Pennsylvania.

The subjective signs are fairly constant in all forms of cataract. Large, circumscribed, peripherally-seated opacities are much less disturbing to sight than small ones, or even faint nuclear hazes, situated opposite the pupillary area. Nearly always, during the formative period, "cobwebs," "motes," and "veils" are spoken of, while at times, distorted and multiple vision are the chief complaints. As the lens becomes more opaque, however, the sight becomes more greatly reduced, until, eventually, large objects can be no longer discerned; although if the condition is uncomplicated, distinction between light and darkness remains.

During the incipient stages of cataract, it frequently happens that presbyopic subjects are able to dispense with the lenses that they have ordinarily employed for near-work, and at times, they may desire concave ones for use during distant vision. This, which is due to an increase in the refractive power of the eye, consequent in part upon swelling of the lens, before any coarse opacity makes its appearance, is known as "second sight." Pain and photophobia, which are best relieved by smoked glasses, are rather infrequent symptoms in the early stages of the condition, and are referable to the pressure of the swollen lens upon the ciliary body and the iris.

A cataract may remain limited to some particular portion of the lens, or it may gradually involve the entire lens-substance, and lead to practically complete opacification. The former variety, which is divided into several types, dependent upon the locality of the lens which is involved, may be either congenital or acquired.

When the opacity is situated in the anterior pole of the lens, the condition is known as "anterior polar cataract" or, by some, as "anterior pyramidal cataract." The cause of the congenital form is supposed to be due to some fœtal disturbance operating during the development of the lens structure. In the polar variety, which is one of the true cataractous forms, the opacity assumes the figure of a star or rosette with its radii extending toward the periphery or equator of the lens. It has been seen to follow contusions of the globe; to appear as a part of so-called pigmentary retinitis; and to exhibit itself as a consequence of uveitis. The post-natal form, as a rule, is the permanent result of rupture of a deep corneal ulcer, by which the anterior capsule of the lens is brought into contact with the inflamed cornea, leading to proliferation of the endothelial cells of the lens occupying the position of the pupillary area, with the formation of a subcapsular opacity after the re-formation of the anterior chamber; this being in addition to a nebule, which, as a rule, marks the site of the previous corneal ulceration.

When there is a deposition upon the anterior face of the capsule which in itself is irregular, opaque, and thickened, the condition is known as "anterior pyramidal cataract"; in reality, it is situated in both the lens and the anterior capsule. The disturbance in vision depends upon the density, the extent, and the position of the opacity. Treatment, as a rule, is unavailing, except the possibility of the performance of an optical iridectomy, should the opaque area be large and the pupil be small.

When the opacity is situated at the opposite pole of the lens, the condition

is designated as "posterior polar cataract," or "posterior pyramidal cataract." In most instances, the posterior form is congenital in character, and is due to some interference with the disappearance of the hyaloid artery. It is recognized as a minute dot or a small area on the posterior capsule at the posterior pole of the lens, projecting backwards into the vitreous humor. True posterior polar cataract is, at times, found as the initial point of election of the senile form, and is not infrequently seen associated with uveal disorder associated with lymph-stream disturbance and improperly called liquefaction of the vitreous humor. Generally it appears in the stellar form. In this variety, interference with vision depends not only upon the size of the opacity, but also upon concomitant and relevant changes. Treatment, to be of any avail, must be directed, if possible, towards any existing cause.

A third form, although separated into quite a series of groupings, consists of localized opacities in various parts of the lens. Opaque stripes extending from pole to pole, and often combined with the central and the zonular forms, are known under the name of "spindle-shaped" or "fusiform" cataract. Minute dots, usually mostly situated in the central portion of the lens, and frequently grouped in the anterior cortex, are known as "punctate cataract." Small spheroidal opacities in the nucleus, of congenital type, have, by some, been described as "central cataract." As a rule, they are all mere concomitants of gross intraocular pathological change.

Zonular opacities situated between the nucleus and the cortex of the lens, both of these portions being transparent, are most uncommon. At times, they may progress as a series of minute opaque processes, or "riders," as they are termed, rendering the lens quite opaque. This variety of cataract, also known as "perinuclear" or "lamellar," is either congenital or appears during infancy in rachitic subjects or in those who have been affected with convulsions. Usually, it is binocular, and almost without exception, it is but slowly progressive, though cases in which it has become total, have been reported. Upon account of the situation of the main opacity or opacities, vision is generally markedly disturbed, necessitating either artificial mydriasis, iridectomy, or lens-removal.

If the appearance of the lens shows that the opacity is probably stationary, and if the opaque zone be not so broad that, after the pupil has been dilated with a mydriatic, vision is bettered, it is advisable to expose a portion of the transparent periphery of the lens by an iridectomy, thus obtaining an eccentric pupil through which the subject can look. If, on the other hand, the peripheral zone of the transparent lens-matter be narrow, and if there be evidences of increase in the cataract, it is preferable to remove the lens, either by extraction, when the nucleus seems well hardened, or by discission, when the lens-matter appears soft.

Traumatic Cataract. As a rule, this form of lenticular opacity is the result of a rupture or a disturbance of the capsule of the lens from an injury which permits the aqueous humor or the lymph in the vitreous humor channels to come into contact with the lens-fibers. The laceration in the capsule may be the result of either direct injury from penetration of a foreign body or indirect disturbance by contusion.

Shortly after the capsular laceration, the lens-fibers near the rent begin to swell and to cloud. Later, if it be the anterior capsule which is injured, they exude into the posterior and anterior chamber, appearing as gray, fluffy-like masses. The aqueous humor, however, soon dissolves the lens-material which has gotten into the two chambers, and thus gaining freer access to the interior of the lens by the removal of the primary plugs of lens-matter, causes more or less of the lens-substance to become swollen, opaque and absorbed. In this way, after the lapse of some time, the major portion of the lens-material may be dissolved and the pupil again become almost black. In most cases, however, the capsular wound cicatrizes and becomes closed, stopping the process of absorption by the liquefying method before the removal of all of the lens-matter has been fully accomplished.

Many cases of traumatic cataract pursue their courses with but few signs of inflammation; but a successful termination is often prevented by the development of an iritis, caused either by direct injury or by the pressure of loose or swollen lens-matter. Septic matter may be also introduced into the eye either at the time of the traumatism or later, giving rise to an iridocyclitis, or a panophthalmitis, which, if left alone, may, in some instances, produce an orbital inflammation. If not prevented, it not infrequently happens that secondary glaucoma supervenes. This condition is generally due either to a blocking of the angle of the anterior chamber by pressure or to the presence of a mass of lens-matter obstructing the passage of the anterior lymph streams through the circumlental space, the pupillary area, or the spaces of Fontana.

The increasing forms of cataract are roughly divided into four stages. As a rule, the changes begin in isolated areas, but increase and multiply until practically all of the lens-substance is affected. One of the most frequent varieties is that known as 'senile cataract.'

In the first, or incipient stage, the opacities usually appear in the periphery of the lens. They are found either in the form of spots or of stria which radiate from the lenticular equator toward the center of the lens. This condition is generally known as "cortical cataract." In other cases, the nucleus of the lens becomes quite hazy and opaque, while the periphery may remain comparatively clear. This variety is ordinarily designated as "nuclear cataract." In most instances, however, the two forms, in which both the cortical and the nuclear portions of the lens are effected, are associated.

Clinically, in the stage of development of the cataract, the anterior chamber will be found to be but slightly shallowed or of normal depth, and the opacities will, by oblique illumination, appear as whitish or grayish streaks and sectors with dots.

In the second stage, or that of the ripening, the lens is swollen, this being due to the fact that it contains an increased quantity of fluid. The opacities are more pronounced, while numerous clear spaces are scattered throughout the lens-substance. As a rule, the anterior surface of the lens has an iridescent, bluish-white appearance. The anterior chamber is shallow. Clear spaces situated in the lens between the iris and the opaque portions of the lens-substance, can be recognized by oblique illumination, allowing a shadow of the iris to be cast upon the lens at the side from which the light is thrown.

In the third, or mature stage, the lens has returned to its ordinary size, this, in great measure, being due to the loss of the lenticular fluids by resorption. The clear spaces in the lens-substance are replaced by opacities, and the anterior chamber regains its normal depth. The iris fails to cast a shadow. The lens presents a dull-gray or waxy appearance, and its anterior face is seen to be situated on a level with the pupillary margin of the iris. Should the pupil be artificially dilated, it will be found that the red reflex from the fundus, which can be dimly obtained while the cataract is in its immature stage, is lost.

In the fourth, or hypermature stage, as a rule, one of two changes occur: either the cortical substance disintegrates and becomes fluid, while the nucleus remains hard, so-called "Morgagnian cataract," or the broken-down cortical substance becomes more greatly inspissated and dries into a hard and somewhat flattened mass.

In hypermature cataract, the anterior chamber is of normal or of increased depth, the iris generally fails to cast any shadow, and the surface of the lens appears either homogenous or it exhibits irregular dots in the situation of the ordinary physiologic sectors. If the overripening process be more advanced, fatty and calcareous degenerations in the lens and its capsule occur, the anterior chamber becomes deeper than normal, and tremulousness of the iris can be recognized.

In Morgagnian cataract, the nucleus may sink to the bottom of the liquid contents contained within the lens-capsule, the walls of the capsule will come in contact with one another, and the volume of the lens-mass may become increasingly smaller, until nothing but a thin, transparent membrane remains: the improperly termed "membranous cataract."

Practically, according as the dimensions of the nucleus of the lens vary, a cataract is spoken of as "hard" or as "soft." When there is no grossly hard nucleus, the cataract is said to be soft; so that, as a rule, all cataracts occurring in persons under thirty-five years of age fall under this category. In older subjects, however, the lenticular nucleus is larger and it is more or less sclerosed; so that opacities occurring in such persons are designated as hard cataracts, although the cortices of such lenses may be quite soft.

In some senile cataracts the general sclerosis becomes so pronounced that practically the entire lens is involved in it. In such a condition, the cataract, as a rule, appears of a dense reddish brown tint, and is markedly translucent. This variety, when complicated with the remains of old hæmorrhagic extravasations, is usually known as "black cataract."

Secondary Cataract.—This improperly termed condition refers to the changes that are, at times, observed in the capsule of the lens, following, for example, extraction of the lens. It it frequently seen after the attempted removal of an immature cataract in which a portion of the lens-substance remains. This occurs when the capsular membranes become agglutinated and the escape of any remaining lens-material is prevented. In many instances it happens that the entire pupillary area is not covered by the opacity, and fairly satisfactory vision may be obtained.

When the condition does not develop until some months after the primary operation for extraction, it is generally dependent upon a fresh proliferation of the so-called epithelial layer, with reduplication of the capsular remains.

Etiology.—Congenital conditions operating upon the causation of cataract, which, at times, based upon well-founded clinical observation, have been determined to be hereditary in type, practically resolve themselves either into developmental disturbances in the eye or into antenatal inflammatory reaction of the organ.

General disease, independent of senility, particularly if of vascular or lymphatic type, becomes, at times, a causative factor. In these cases there is an imperfect abstraction of autotoxic substances: (The fact that subjects with increased blood-pressure are more prone to cataract than those with normal vascular tension, illustrates this very well). Diabetes mellitus is responsible for about one per cent. of cases, this variety being bilateral and developing rapidly. Rachitis, nephritis, diabetes (vascular and lymph disturbances), and some affections of the skin, are accredited with the production of the condition.

Certain drugs, such as ergot and napthalin introduced into the system, are eminently causal in character.

Local diseases and traumatism frequently produce all forms and varieties, especially in subjects in whom there are changes affecting the lymph-stream formation and circulation, and where the solvent powers of the lymph-fluids can be made to exert their influences directly upon the unprotected and the exposed fibers themselves. Constant direct exposure of the eye to high degrees of heat, such as is found among glass-blowers and puddlers or among those who are subjected to continued undue action of x-rays, ultraviolet or chemic rays, etc., will not infrequently give rise to the condition. (In this condition, it is interesting to note that the eye situated the nearer to the heat, etc., is the one which becomes the cataractous.)

Pathology.—By some recent authorities, cataract is said to be ordinarily caused by a too-rapid sclerosis and shrinkage of the nucleus. As one of the results, a cessation in the growth of the surrounding lens-fibers takes place. These separate from one another at certain places, especially in the area between the nucleus and the cortex, and particularly in the equatorial region of the former, producing fissures or cavities that gradually become filled with an albuminous liquid which coagulates and produces spheroidal bodies known as the spheres of Morgagni. Later, the lens-fibers which constitute the walls of the fissures, become translucent and unequally swollen, giving rise to large and mostly nucleated vesicles of varying shapes and sizes. After disintegration of these fibers and cells, with their remains, has fairly well taken place, the so-termed epithelium of the lens becomes abnormally thickened, the most peripheral lens-fibers become vacuolated, and the capsule of the organ becomes abnormally separated by the pathologic processes at work. In contrast to this breaking-down of the cortex, the shrunken and hardened nucleus, as a rule, remains practically unchanged.

Prognosis.—The diagnosis of cataract being once established, it frequently becomes necessary to be able to decide how long it will take for the

cataract to become mature, or what is known as "ripe." This is difficult, as the rate of progress is variable. Senile cataract may require years to become sufficiently opaque and hardened for operative interference, while in a few rare instances, they have ripened over night. It is generally wise, therefore, if the incipient signs of cataract be discovered in elderly persons, not to alarm them by telling them of their existence, as vision may not be seriously disturbed for long periods of time. Particularly is this so in nervous females in frail health. Under all circumstances, however, it is better that the diagnosis be communicated to some responsible friend or relative of the patient. At times, among men, especially with those who are harassing themselves with monetary and business affairs, it is best to acquaint them with the nature of the disturbance in order that better hygienic living may be obtained, and proper arrangements of business affairs may be consummated.

As a general rule, cataracts in the young, those due to general dyscrasia, and the secondary forms, all develop rapidly. On the contrary, all forms of opacity which commence in the periphery as narrow radii, are slower in extension than those in which there are broad and dot-like opacities.

In reference to the prognosis of the result of operative interference for the removal of cataract, numerous factors must be taken into consideration. In many cases it is essential to determine the probable condition of the interior of the eye by means of the so-called candle-test. No matter how dense a cataract may be, a patient with a healthy fundus should be able to determine the exact position of a localized glare of a candle-light placed in all parts of the visual field while the organ is constantly directed towards a second candle flame situated at a central fixation-point. If the image of the moving light be lost at any point in the field, a disturbance of one or more of the ocular tunics, or of some sentient area of the visual apparatus may be diagnosed with almost certain precision, and the prognosis for operation rendered relatively unfavorable. If all light-perception be gone, operative procedure is useless. The condition of the appendages and adnexa of the eye must be noted, and any disturbance of them must be carefully treated and removed as much as possible; particularly is this so with lacrymal disease.

The state of health of the patient should be good as can be. General dyscrasiæ, such as diabetes, rheumatism and syphilis, do not contraindicate operative interference, although their active expressions should be removed in order to render the chances of a successful termination more certain. Healthy old age is no contraindication.

Profound anæmias, abnormal mental conditions, and pulmonary complications, are all apt to militate against operative success, which should not be considered as such until at least six months after the actual procedure.

The surroundings of the patient, the character of the place of operation, the time of the year, and the hour of the day, must all be taken into consideration. The more aseptic the conditions under which the operation is to be performed, the greater will be the chances for a successful termination; in fact, this is the greatest of all the prognostic factors. Operations performed

in hospitals are much more certain to have a good outcome than those that are performed in private houses.

In regard to the efforts of the character and the condition of the cataract itself upon the prognosis, the general rule is that the more nearly mature the cataract is, the more certain are the chances of resultant good vision. For many reasons, operations upon even uncomplicated immature cataracts are not advisable. The procedure, particularly in the hands of the inexperienced, is apt to be associated with some disastrous complication, which in spite of prompt healing, will give rise to later loss of functioning value. This, in spite of the keen rivalry for operative procedure, should be remembered and considered, whenever possible, in order to give the patient the best possible chances for a permanent successful result. In some very old subjects, where the nucleus of the lens is large and well sclerosed, extraction may be made with every chance of eventual excellent result. Operations upon overripe cataracts are not apt to be very successful. The frequency of "fluid vitreous," the degenerate condition of the zonule, and the density of the capsule, are all, with the possibility of the production of secondary glaucoma, serious complicating conditions.

At our next lecture we will take up the question of Treatment.

(To be concluded in the December issue.)

THE PROBLEM OF EFFICIENT NURSING FOR PERSONS OF MODERATE MEANS.*

By WILLIAM O. STILLMAN, M.D.,

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While poverty is not a crime, some of its punishments are more severe than those frequently meted out to criminals. One of the greatest misfortunes which falls to the lot of persons of small or limited means, is the entirely inadequate provisions which are usually within their reach in order to secure scientific or even intelligent nursing care in case of sickness.

Among the propositions advanced for relieving this condition have been, first, an attempt to increase the general knowledge of physiology and hygiene by having it more thoroughly taught in the public schools. This certainly does not meet the essential needs of the case which are largely special and technical. A second proposition is that there shall be increased hospital facilities and community hospitals established for rural districts. This proposition seems also wholly to fail to meet the requirements of the great masses of people of small income, both in city and country, for home care. A third proposition which has been advanced, is that the visiting nurse should solve the problem. While the visiting nurse is a most excellent idea, in cases of

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* Author's abstract of paper read before the Medical Society of the State of New York, January, 1909.

severe sickness close and constant skilled attention is imperatively needed. A fourth plan is that an endowment should be created to assist patients in paying a trained nurse. This method has had some respectable sponsors. Aside from the fact that this plan is financially unattainable, other great difficulties are that the majority of people of small means do not care to be pauperized by any such method, and, furthermore, that the supply of hospital trained nurses is entirely inadequate to meet the necessities of the case for our vast population, and is likely to remain so. The fifth plan is that of the less highly trained, lower-priced nurses and attendants. My own experience is along the line of this proposition. Dr. James Tyson, of Philadelphia, is quoted as saying, in regard to poor patients, "Either the trained nurse must be willing, as physicians are, to take such cases at less than their usual fee, or they must consent that there shall be a class of nurses not so well trained as their more favored sisters, who are willing for this reason to work for smaller compensation." As we all know, the resource in case of sickness for most families of small income, has been to employ what is commonly known as "the domestic nurse." She has usually been without training, oftentimes, in the past, superannuated or physically partially incapacitated, and unable to earn her living in any other way. In all probability the great mass of the people will continue to employ domestic nurses, and it seems to me that the most reasonable plan which presents itself is to give these domestic nurses a moderate amount of scientific and technical training so as to fit them for more intelligent and efficient service, gradually, in the course of time, increasing the standard of efficiency. The effect of any systematic attempts to giving such an education at a reasonable price, is to attract to this service young and capable women who will rapidly displace the incompetent persons who have so largely monopolized domestic nursing.

Nearly four years ago I undertook, in connection with some eighteen, or more, other physicians, aided by the skilled assistance of a registered nurse and other trained help, to solve this problem of efficient nursing for people of moderate means, by establishing a regular school for didactic and practical instruction for domestic nurses. This work was located in the city of Albany, N. Y. It is unnecessary to go through the details of the development of the idea. I think that it will be sufficient to give the results as they now stand.

We have undertaken to fit women, over twenty-one years of age, who can come up to the not very exacting educational and physical standard for admission to our school, for intelligent domestic service by a six months' course of instruction. I will say right here that it requires a good student to learn the lessons taught and to master the course of instruction given. Those persons who are long since past the age when school lessons can be easily acquired, find it very difficult to take the course and are discouraged by us from beginning it.

The text-books employed are those usually adopted in training schools for nurses. The course of lectures continues for four or five days each week for sixteen weeks, or practically four months, and includes instruction in

the elements of nursing by the head nurses. This comprises taking temperature, pulse and respiration; the keeping of charts and records, the giving of technical lessons in sponging and baths of all kinds, in bed-making, and in giving packs and enemata; the care of instruments and materials, the preparation of dressings and the patient for minor home surgery; the use of the syringe and the catheter, the preparation of antiseptics and also of nutrient enemata. Our registered nurse was given a course of instruction in dietetics in the school for domestic science at Columbia University, and we have a diet kitchen, with a number of tables and gas stoves, so that a considerable class can be trained at one time to prepare food for the sick according to the latest scientific rules.

The physicians undertake to give instruction in anatomy by lectures and demonstrations on the skeleton and manikin. They also teach the elementary principles of physiology and bacteriology, and demonstrate the subjects by means of charts and the microscope. Materia medica is taught, and the pupils are required to learn the dosage and administration of drugs, together with the weighing and measuring of the same, and the physical properties of the more important medicines. Attention is given to poisons and their antidotes. Special emphasis is laid on the study of hygiene and sanitation, including the usual problems relating to air and water, the disposal of waste, disinfection, ventilation, personal hygiene, etc. Lectures are also given by physicians on accidents and emergencies, including instruction as to what the nurse may do before the physician arrives in cases of hæmorrhage, fracture, drowning, poisoning, etc. Lectures are given on obstetrics and gynæcology, the proper care of the child and the mother, and on the indications for the surgical relief of female complaints. Diseases of children and the care of infants receive special attention, and contagious and infectious diseases are handled from the standpoint of public protection, as well as the protection of the nurse herself. Special attention is given to tuberculosis; also to venereal diseases, typhoid and other fevers, small-pox, etc. Lectures are given on general nursing in medical cases, and on the relation of the nurse toward the patient and physician. The pupils are also taught to have an intelligent idea of the interpretation of symptoms, and what they may mean. For instance, they are taught concerning sputum and its preservation for examination, the significance of excessive perspiration, chills and their immediate treatment, the urine and the interpretation of its ordinary clinical appearances. They are taught concerning the significance of severe pain, disturbances of nutrition, also of the excretions and digestive apparatus. Finally, a very moderate knowledge of the principles involved in surgical nursing is given, lest a nurse be called upon to assist in emergencies in the country or when hospital trained nurses are not within reach in the home. This instruction includes the knowledge of sterilization and disinfection, the care of instruments and surgical supplies, the preparation of bandages, ligatures and gauze, rubber gloves, as well as what to do in the case of wounds, fractures and the care of the patient before and after operations. The methods of using anæsthetics are also explained. Specialists give instruc-

tion concerning the rudimentary principles of treating diseases of the eye, especially ophthalmia, and the knowledge that every nurse ought to have concerning skin diseases and maladies of the ear, nose and throat. Electricity and electro-therapy are also briefly touched upon.

After four months of oral instruction and class work, in which the head nurses give as many lectures as do the physicians (something over one hundred in all) and conduct quizzes on all lectures given, the pupils are required to perform two months of actual bedside work on cases to which they have been assigned, subject to supervision by the head nurses. They are carefully instructed in regard to keeping records and temperature charts, and are also expected to wear a nurse's cap and distinctive nurse's dress. Everything is done to encourage *esprit du corps* and respect for their calling, and they are encouraged to take magazines especially published for nurses and to continue their studies after graduation. A few ultimately become registered nurses. A few drop out. Many remain nurses. The fee for this course of instruction is the nominal one of twenty-five dollars in full.

Now as regards the results obtained, I believe them to be very much what they are in any school. Some of the pupils are proficient and very satisfactory, and some are backward. At the close of the lecture course, written examinations are very carefully conducted, and I am sure that an inspection of the examination papers would surprise physicians generally because of the indications that a really large amount of detailed and technical knowledge has been absorbed. Answers to questions are marked on a percentage basis. Previous class standing is considered. Pupils who cannot come up to the required standard of marks are refused graduation. Seven classes, the last containing thirty pupils, have been graduated by the school, and the experiment has proved, on the whole, a very satisfactory one to those conducting it. The weak point is the short practical training. It will, undoubtedly, in time be extended, and probably even now is proportionately as long as that received by the average medical student before graduation.

Our nurses usually readily find employment, and the demand, as a rule, is in excess of the supply. Many excellent nurses are produced. I commend this experiment to the careful consideration of the profession at large as a practical attempt to solve the problem of efficient nursing for persons of moderate means. It is not felt that these nurses infringe on the legitimate field of work of the registered nurse. We endeavor to have the prices charged vary from eight and ten dollars a week for undergraduates, to not more than twelve to fifteen dollars a week for graduates. Occasionally our plans in this respect are spoiled by persons offering eighteen dollars a week in order to secure the services of some favorite nurse. After all, the great law of supply and demand must be the final arbiter in this question of nurses for people of moderate means, and in determining what compensation shall be paid. In most families the question is now between a moderate-priced nurse or none at all.

THE ADRENALS IN SUDDEN DEATH.

By CHARLES E. de M. SAJOUS, M.D., LL.D.,

PHILADELPHIA.

(Concluded from the October number).

The diagnosis of this condition is rendered difficult by the fact that its symptoms are merged with those of the causative toxæmia. We may conclude, however, that whenever purpura occurs in an infant or young child, especially in the course of an infectious disease, or of any septic condition, after a burn, etc., the vascular tension is sufficiently high at least to expose the adrenals to hæmorrhage, and the child to more or less sudden death. In some cases, a sudden onset of vomiting, abdominal pain, convulsions and a rise of temperature —without purpura—precede the terminal phenomena.

The treatment of threatening adrenal hæmorrhage receives no attention in the literature of the subject, so obscure is its pathogenesis. Interpreted from my viewpoint, however, the indications are clear: *the excessive vascular tension must be reduced* to relieve the adrenals of the intense congestion which disrupt their tissues. The experience of J. C. Wilson with chloral hydrate in scarlatina indicates clearly that this agent is well borne even in the exanthemata. As this drug promptly reduces the vascular tension it may be used advantageously to reduce the adrenal engorgement. Other vasomotor depressants, the bromides, preferably the sodium salt, or veratrum viride, may be employed instead if preferred. Simultaneously enteroclysis or hypodermoclysis should be used to enhance the osmotic properties of the blood and increase its fluidity, besides promoting diuresis and the elimination of the pathogenic substances to which the excessive vascular tension is due. The slow enteroclysis used by surgeons, the patient being in the Fowler position, is valuable in this connection.

When sudden collapse, lividity, and hypothermia follow the phenomena described, hæmorrhage into the adrenals sufficient to inhibit their functions has occurred. Our hopes then should be based upon the possibility that one of the organs may be able to resume its functions. As one-twentieth of both adrenals suffices to sustain life, the prolongation of the vital process by artificial means is then indicated. The *slow* injection into the veins, as in the treatment of shock, of adrenalin, largely diluted in saline solution, at 105° F., is the best means available. The fact that Crile[4] kept a decapitated dog alive over ten hours by means of a 1 to 50,000 or 100,000 solution of this kind, emphasizes the value of the procedure.

Type 2. *Toxæmia in the Newborn.*—An infant within a few hours or days after birth, often after a difficult labor, becomes jaundiced and weak, and has, perhaps, diarrhœa. Collapse comes on rapidly and the child dies. At the autopsy the only lesion found is located in the adrenals, which are enlarged, exceeding in size in some cases, the underlying kidneys. They are brown, bluish

[4] Boston Med. and Surg. Jour., Mar. 5, 1903.

or slate-colored and their parenchyma is converted, in the most marked cases, into a pulpy mass, or may have ruptured, flooding the peritoneal cavity with blood. In most instances, however, there is intense hyperæmia, with here and there an hæmorrhagic area.

Judging from post-mortem evidence in the newborn, adrenal hæmorrhage—macroscopic and microscopic—is very common. Mattei[5] found it seventy-five times in ninety autopsies in infants, particularly the newborn. Hamill[6] also judging from numerous autopsies, urges that "hæmorrhage into the suprarenals is very common" in the newborn.

To explain the predilection of infants to this morbid process many causes have been suggested: the pneumococcus (Hamill and Dudgeon), the staphylococcus albus and aureus (Riesmann), weakness of the intra-adrenal vessels, either congenital or due to general disorders such as syphilis, infantile scorbutus, lesions of the vascular walls of a degenerative type, miliary aneurisms, lack of firmness of the medullary portion of the organ, compression of the uterus during labor, compression of the inferior cava of the infant, thus offering resistance to the blood-streams from the adrenals which flow into this great channel, ligation or prolapsus of the funis and other mechanical factors capable of causing passive congestion of all organs, including the adrenals. It is probable, however, that these agencies are but occasional causes, that in another small proportion of cases we are dealing with the results of an infection such as that described when reviewing the first type, but that in the majority, the pathogenic factor is a toxæmia of a kind which so far, has been overlooked, and due to *toxic products of metabolism.*

Abelous and Langlois, in 1891, pointed out that one of the functions of the adrenals was to destroy certain waste products. My own labors[7] have not only sustained this view, but they have shown that the adrenal secretion played an important part (as amboceptor) in all immunizing processes in conjunction with thyroiodase (opsonin) and trypsin (complement), including the conversion of products of metabolism into eliminable end-products. When, at birth, the infant ceases to receive maternal blood through the placenta, it has to depend upon its own resources for this important function. If, for any reason, this protective rôle is imperfectly carried out, intermediate, and therefore toxic, wastes are allowed to accumulate in the blood, and the identical process described under the preceding heading prevails, *toxic wastes being the source of the excessive vascular tension instead of bacterial toxins.*

The pathology of this type is, therefore, in its general lines similar to that of the former. It differs from it, however, in that purpura is often replaced by a cholangitis, the underlying cause of the icterus.

The treatment recommended for the first type is also indicated here. In bottle-fed infants, however, the essential feature, if a successful issue is at all

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5 Lo Sperimentale, p. 386, 1883.

6 Journal American Medical Association, Dec. 5, 1908.

7 "Internal Secretions and the Principles of Medicine," Volumes I and II; and New York Medical Journal, Feb. 20 and 27, 1909.

to be obtained, is their immediate transfer to the breast of a wet nurse. As Welch, of Johns Hopkins, stated some years ago in his Harvey Lecture: "The infant comes into the world with protective antibodies in the blood smaller in amount and less energetic than those possessed by the healthy adult. It is an important function of the mother to transfer to the suckling through her milk immunizing bodies, and the infant's stomach has the capacity which is afterward lost, of absorbing these substances in an active state." In the class of cases in point, the milk of the mother or of the wet nurse is therefore a most potent remedy since it antagonizes directly the toxæmia. In a case of my own, practical resuscitation was thus obtained, the infant being out of danger in twenty-four hours.

Type 3. *Adrenal Apoplexy in the Adult.*—In the course (1) of Addison's disease, adrenal cancer, tuberculosis of any organ but involving the adrenals, Bright's disease, obstructive renal or cardiac disorders, pulmonary congestions (especially bronchitis and pneumonia), extensive burns; or (2) of an apparently insignificant, though stubborn, attack of lumbago, accompanied perhaps by some bulging in the abdomen or immediately below the floating ribs on one side or the other,—though in most cases the well-defined signs of hæmorrhagic pseudo-cyst of the adrenals have preceded the attack—there occur sudden and severe abdominal pain with tympany and vomiting, soon followed by collapse, hypothermia, rapid and weak pulse, coma and death in a few hours, or within very few days.

The cause of this acute lethal process, in the light of the data submitted in the foregoing pages, is quite plain: the functions of the adrenals had ceased, and the phenomena were identically the same irrespective of the cause of the functional arrest. The enumeration of these causes from the standpoint of pathology illustrates the multiplicity of the disorders in which the prognosis is materially influenced by the adrenals. In Addison's disease, tuberculosis, and cancer, of the adrenals, death occurs when the last vestige (one-twentieth of both organs) has itself yielded to the local destructive process. In bronchitis, pneumonia, and burns it results as in the infantile type, from general toxæmia which in turn causes hæmorrhagic destruction of the adrenals. Renal and cardiac obstructive lesions, by increasing the vascular tension, also submit the adrenals to undue stress and, therefore, to hæmorrhage. The second order refers to a condition which ultimately ends in rupture, a gradually developed hæmorrhagic cyst of the adrenal *per se* which may attain the size of a child's head before rupturing and pouring its contents into the peritoneal cavity.

The treatment should, of course, be addressed to the causative disorder in each instance, and is therefore prophylactic. Important in all the disorders enumerated however, is the reduction of excessive vascular tension which, by subjecting the adrenals to undue stress, exposes them to hæmorrhagic destruction, and the patient to sudden death.

Cyclopædia of Current Literature

ALBUMINURIA.

A large amount of albumin, without blood or pus, may generally be taken to indicate chronic tubal nephritis, and this can be confirmed by a high specific gravity, by microscopic examination, and by the appearance of the patient. A very small trace in an elderly or middle-aged man will probably indicate chronic interstitial nephritis; confirmatory evidence can be found in the aspect, the history, the pulse tension and tracing, the outward displacement of the cardiac impulse, the accentuation of the systolic apical sound, and the accentuation and reduplication of the second sound at the base of the heart. These indications may be further supported in some cases by the pale color and low specific gravity of the urine; less frequently information may be gathered from the presence of casts and from their predominant characteristics. The absence of casts is not, however, to be regarded as an indication that the case is not one of chronic interstitial nephritis. In a young man a mere trace of albumin may be the only evidence of a functional albuminuria, and the diagnosis must then rest upon negative evidence to a large extent, one of the most important factors being the relatively high specific gravity, unless this has been influenced by nervousness or by the recent consumption of a large quantity of liquid. With the same limitations the deep color of the urine will lend confirmatory evidence.

There are so many causes for great variations in the condition of the urine that stress cannot be laid upon the amount of albumin without paying due regard to most of the changes which have been touched upon by the writer. After all, albumin is merely an indication of an abnormal condition, it is not a disease. Therefore, as with every other symptom, by itself, it affords no reasonable ground for a diagnosis. Numerous other signs and symptoms must be carefully weighed, perhaps at short intervals, before it is justifiable to express more than a provisional diagnosis. Nestor Tirard (Lancet, October 9, 1909).

ASTHMA, CALOMEL IN.

The writer prescribes a powder of calomel, from one-half to two grains, according to the habit of the patient, accompanied, of course, by some of the usual antispasmodic remedies, and his experience is that relief is rapidly obtained, even before purgation takes place. Other cathartic drugs do not seem to have the same effect or certainly not so rapidly, and the ease with which all the powder or tablet is taken is an important factor. C. B. F. Tivy (British Medical Journal, September 25, 1909).

BRONCHIAL ASTHMA, TREATMENT OF.

Bronchial asthma is a disease caused by irritation of the hyperæsthetic nervous system of respiration. Its cause is to be sought not in, but outside of the lungs. The mucous membrane of the nose is the portion of the respiratory tract most exposed to injuries from without, and anomalies of the mucous membrane and of development are caused which produce points of pressure that often excite bronchial asthma in persons of nervous disposition, and in such cases operative treatment of such points of pressure are indicated. In every asthmatic the ap-

plication of the high frequency interrupted current to the vagus, accessorius, phrenic, and sympathetic nerves produce an anæsthetic effect, relieve the breathing after a few minutes, and after several sittings often permanently terminate the asthma. The positive electrode should be placed on the lateral triangle of the neck or in the nose. The writer also finds the use of electricity in this manner useful in other pains or diseases of the nerves, such as migraine, intercostal neuralgia, angina pectoris, lumbago, sciatica, and pain in the larynx. Otto Gunzel (Medizinische klinik, August 8, 1909; New York Medical Journal, October 9, 1909).

DIABETES, TREATMENT OF.

All authorities recommend the administration of large quantities of fat on account of its high caloric value and easy assimilation. In all his patients, who have taken only a small quantity of fat, the writer has observed nothing but good effects, but the large quantity often given caused severe digestive disorders in children, which class of patients are especially the subjects of this study. In some cases vegetable fats can be substituted for animal fats with great advantage. Olive oil is the best form and is especially well borne by young subjects. It should be given in gradually increasing doses, from one teaspoonful to three tablespoonfuls and more after each meal.

What to do when acetone and diacetic acid appear is a problem to be met by the practitioner and these usually are met with when a person is suddenly deprived of all carbohydrates. The text-books usually advise a return to carbohydrates in case these substances appear in large quantities, but the writer thinks this dictum must not be applied indiscriminately. In the majority of cases, especially those of a milder type, the acetone will usually disappear in a few days even though the carbohydrates be still withheld. He has never seen a single case in which coma followed a strict protein and fat diet, with the exclusion of all carbohydrates. Those cases which have been long under observation and have been kept on a strict carbohydrate-free diet for some time are somewhat different. If they develop acetone bodies it is necessary to give them some carbohydrates with corresponding diminution of the proteid, till the diacetic acid diminishes or disappears. The writer does not find it necessary to allow a ratio of thirty-five to forty calories per kilo, at least for patients who are mostly at rest in bed. He gives examples of the diets used, in two of his cases reported averaging below twenty-five calories per kilo. In the other case a much larger amount was given at first, it being a case of some duration, but was afterwards reduced to about thirty calories per kilo.

There is hardly a drug that has not been used in the treatment of diabetes but there are three drugs to which he specially calls attention. These are sodium bicarbonate, opium and atropin. The use of sodium bicarbonate is usually limited to the treatment of acidosis but the author thinks that given with a carbohydrate-free diet and in sufficiently large doses—thirty to forty grains a day—it has a distinctly inhibitory action on the excretion of sugar. This statement has also been made by Reale. Opium and its alkaloids is specially valuable where the neurotic element is present. The objection to their use is the danger of causing habits and sometimes the uncertainty of their action. It has been the writer's good fortune to discover that atropin has a greater effect on the

excretion of sugar than any of the drugs that have been tried. It has the advantage of being well borne in large doses if given cautiously and in gradually increasing amounts. It causes the disappearance of glycosuria more quickly than withdrawing the carbohydrates, and, when these have been cautiously increased, it is often possible to suppress any glycosuria that may come on with atropin alone, without any change of diet. The sulphate was the salt generally used, but the methyl-bromide has some advantages in being less toxic. With the sulphate the initial dose with adults was one-fiftieth of a grain t.i.d. gradually increased sometimes to one-twentieth, t.i.d. These large doses were seldom required. In children it is advisable to begin with one-two hundred and fiftieth or less. If toxic effects are observed, increasing the dose should be stopped or the drug stopped entirely. J. Rudisch (Jour. American Medical Association, October 23, 1909).

EXOPHTHALMOS AND OTHER EYE SIGNS IN CHRONIC NEPHRITIS.

Attention is directed by the writers to the frequent occurrence of exophthalmos in chronic nephritis and the view is advanced that the exophthalmos of chronic nephritis is very analogous to that of exophthalmic goiter, being but one of a number of evidences of a chronic systemic intoxication. They do not think that exophthalmos is due to chronic hypertension, but are of the opinion that the arterial hypertension and the eye signs are but evidences of poisoning by perhaps separate toxins. It is well known that uræmia may develop in a patient whose blood-pressure is not increased, and it seems very probable that in chronic renal insufficiency several toxins are present in the blood manifesting themselves in various ways. Among the total admissions of thirty-three cases of chronic nephritis during the first four months of 1909 at Johns Hopkins University sixteen (48.4 per cent.) showed exophthalmos. The exophthalmos varied greatly in degree, as did the gravity of the nephritic process in the various individuals; those cases presenting evidences of serious intoxication (suburæmic or uræmic symptoms) most frequently showed exophthalmos and one or more of the allied ocular signs—anisocoria, von Graefe's, Moebius's, or Stellwag's sign. Exophthalmos has been an obvious sign in all of the patients with chronic nephritis who have died in the Johns Hopkins Hospital since January 1, 1909, seven in number. The authors also observed that the patients with chronic nephritis showing albuminuric retinitis during this period showed invariably exophthalmos, with one or more of the other ocular signs. They emphasize that exophthalmos is but one of several ocular signs which are frequently present in chronic nephritis. Llewellys F. Barker and Frederick M. Hanes (American Journal Medical Sciences, October, 1909).

FLATULENCY.

Besides dietetic measures and exercise, the author ascribes great importance to massage of the abdomen in treatment of habitual flatulence—energetic massage with rather long sittings—attributing the benefit to the stimulation of the venous circulation. Purgatives should be used only in emergencies. Charcoal and ethereal oils sometimes benefit, although this is not the rule. With a tendency to flatulence there are generally signs of interference with the abdominal circulation, some enlargement of the liver or signs of beginning arteriosclerosis, which explains the benefit from massage

of the abdomen. Cardiovascular affections also induce a tendency to flatulence from this same cause. It is also liable to occur with cirrhosis of the liver before the stage of ascites is reached. A sedentary occupation and lack of exercise are important factors in inducing sluggishness in the abdominal venous circulation with its consequent defective absorption of gases and resulting flatulency. The cardiovascular system should be carefully examined as the first step in treatment or the measures advised for the flatulency are liable to overstrain a weakened heart. E. Schwarz (Medizinische Klinik, September 5, 1909).

OBESITY.

In the most common forms, obesity is due either to over-feeding or lack of exercise, frequently these two factors are combined. It is easy to understand why excessive corpulence follows these two factors. It is much more difficult to explain those cases in which although the proper amount of food is taken and sufficient exercise is indulged in, obesity develops. This has been termed constitutional obesity. After discussions which have been prolonged for years and after careful investigations, the conclusion has now been arrived at that in such cases the oxidation power of the organism has become weakened. This is a factor which bears a direct relationship with the thyroid gland. Temporary changes in that gland raise or depress the power of oxidation. The various forms of constitutional obesity may be classified as follows: (a) primary thyreogenic obesity, dependent on actual changes in the thyroid such as atrophy, degeneration, functional weakness, and so on; (b) secondary thyreogenic obesity, that is to say, functional anomalies of the thyroid on the action of other organs, such as the pancreas, hypophysis cerebri, suprarenals, thymus, pineal gland, and perhaps other organs also, so-called chemical correlations by means of internal secretions. These questions have not only a theoretical interest, but possess important bearings on therapeutics, as anomalies of metabolism known under the term of obesity can only be treated rightly, when in any given instance, the origin of these anomalies has been correctedly recognized. Carl von Noorden (Jour. American Medical Association, Oct., 9, 1909).

QUINSY, TREATMENT OF.

The frequency of suppurative amygdalitis in every day practice causes it to be a disease whose management is a matter of no small importance. Attempts to check its progress are usually futile, unless resorted to very early in the course of the attack. Such abortive measures consist in the administration of guaiacum, salicylates, etc., the use of throat paints, a brisk purge, and the external application of cold compresses. With regard to internal remedies a combination of aspiron and salol, five grains of each every two hours, is most useful. Cold compresses in the early stages are of more value and give greater relief than poulticing. Surgical measures hold a high place in the treatment of quinsy, and the importance of early incision can scarcely be too strongly advocated, the mucous membrane being alone incised, and the operation completed by the use of Lister's sinus forceps. Occasionally the supratonsillar incision must be carried through the anterior pillar in order to secure free drainage. The question of tracheotomy seldom arises, though œdema glottidis has been reported by Mygind, of Copenhagen, and others. In most cases the œdema of the uvula and epiglottis rapidly subsides as soon as the

supratonsillar swelling has been opened.

Inhalation of steam from a bronchitis kettle often affords the patient great relief. Compound tincture of benzoin may, with advantage, be added to the water. The use of creosote is less beneficial, as it causes a dryness in the throat, which counteracts the otherwise soothing influence of the steam. Spraying the throat with hydrogen peroxide (10 vols.) is a valuable remedy, especially if there is much fœtor or co-existent follicular tonsillitis. Considerable benefit is often derived from the sucking of small pieces of ice at frequent intervals. In virtue of its anæsthetic effect it renders swallowing much less painful, and has, in addition, a direct influence upon the inflammatory process.

Constitutional treatment should never be forgotten. The debilitating effect of an attack of quinsy is well known, and in many cases stimulation is called for. Strychnine may be administered hypodermically, and small doses of brandy if the patient is able to swallow. A mixture containing strychnine and iron is of considerable value as soon as the acute stage has passed. Nourishing fluid diet, such as eggs, milk, jellies, and clear soups, should be given throughout, and increased as the appetite returns. Serum treatment must be resorted to in those dangerous cases of quinsy which tend to assume a septicæmic aspect. D. J. Guthrie (Glasgow Medical Journal, September, 1909).

TETANUS, TREATMENT OF.

Prophylactic injections of antitetanic serum in cases of suspicious wounds are unquestionably of great value in preventing the development of tetanus. After the onset of the disease, the local treatment of the wound, aside from the usual antiseptic measures, should include the use of balsam of Peru, a remedy which has been shown to possess some antagonistic action on the tetanus toxin. None of the many special methods of injecting the antitoxin has proven of value, and some of them are too dangerous for general use. Subcutaneous injections of serum in massive doses will yield equally good, if not better, results. Spinal injections of magnesium sulphate solution, by eliminating the spasms, will tide many a patient on to recovery, who would die under any form of serum treatment alone. This form of treatment is destined to lower the death rate from tetanus more appreciably than anything which has been advanced heretofore, including the discovery of the specific serum. Great care should be exercised in arriving at the dosage. William Hessert (Surgery, Gynecology and Obstetrics, August, 1909).

URIC ACID, TREATMENT OF.

All the uric acid solvents, so much vaunted, appear to be equally useless for that special purpose; but the writer believes that salines have their value, if given with discrimination, for facilitating the excreting power of the several abdominal glands. And in this way water is probably one of the best remedies, but even drinking water, if excessive, is not to be indulged in with impunity. In the author's opinion, the late Sir William Roberts's simple prescription of half a drachm of potassium bicarbonate in a tumbler of water at bedtime, to stem the nightly acid tide, is, on the whole, one of the most useful recommendations, apart from tonics, cures at watering places, and change of scene and air. J. F. Goodhart (Practitioner, July, 1909).

WHOOPING COUGH, QUININ IN.

The writer has been giving quinin in an epidemic of whooping cough, and states that the disease seemed to be aborted in every case in which quinin was given in large doses systematically for several days in succession and the drug retained. The pertussis was of an unusually serious type, both on account of its intensity, the number of complications observed and of adults affected. His experience suggests an actual causal efficiency of the drug. The author has always found exceptional tolerance for quinin in children, no appreciable disturbances having been noted in a number of children in an endemic focus of malaria who took by mistake, for malaria, 6 and 7 Gm. of quinin bisulphate. For pertussis he did not hesitate to inject in the course of a day 0.5 Gm. of acid quinin hydrochlorid for infants and 1 Gm. for children up to the age of 5. On cessation of the tendency to vomit he gives the drug by the mouth and keeps it up for eight or ten days, by which time the disease has usually completely subsided.

The writer relates a number of instances to show the prompt relief from the quinin. One patient had pertussis during confinement, but all symptoms vanished the sixth day under 1.5 Gm. of the quinin daily. F. Andalo (Policlinico, July 4, 1909; Journal American Medical Association, August 21, 1909).

ANNOUNCEMENT.

Present Status of Obstetrical Teaching in Europe and America.

The President of the American Gynecological Society has appointed a committee to report at the next annual meeting in Washington, on the "Present Status of Obstetrical Teaching in Europe and America," and to recommend improvements in the scope and character of the teaching of obstetrics in America.

The committee consists of the professors of obstetrics in Columbia University, University of Pennsylvania, Harvard, Jefferson Medical College, Johns Hopkins University, Cornell University, and the University of Chicago.

Communications from anyone interested in the subject will be gladly received by the chairman of the committee, Dr. B. C. Hirst, 1821 Spruce Street, Philadelphia, Pa.

Book Reviews

AN EXPERIMENTAL STUDY OF SLEEP. (From the Physiological Laboratory of the Harvard Medical School, and from Sidis' Laboratory.) By Boris Sidis, M.A., Ph.D., M.D., Author of "Psychopathological Researches in Mental Dissociation." Boston: Richard G. Badger. The Gorham Press, 1909.

Dr. Sidis, who has contributed so largely to our knowledge of practical psychology, especially in the direction of elucidation of morbid phenomena, has collected his studies on sleep, and developed them into an exceedingly interesting monograph. This will be found useful by the practicing physician, as it is not over-technical, notwithstanding the thoroughness of the experimental data. In this monograph, Dr. Sidis calls attention to an important point, which he sets forth, namely, that the hypnoidal state has nothing in common with the hypnotic state, since the term suggests that the state is some modification of hypnosis. The hypnoidal state is simply a normal primitive sleep-state, as his experiments clearly demonstrate.

"Regarded, then, from various standpoints, sleep is a rise of moments-thresholds under conditions of monotony and limitation of voluntary movements. In this respect sleep

strongly contrasts with hypnosis. In hypnosis the individual is specially accessible to any kind of suggestions coming from the external world, the psycho-motor reactions are greatly lightened, and the released by the suggestion or external stimulus with great facility, far greater than in the waking state. This great facility is often expressed by the statement that in hypnosis the inhibitions are removed. What specially characterizes *hypnosis is the fact of a fall of thresholds* present in individuals, with a predisposition to states of dissociation; in sleep, on the contrary, we have found from our study, the general characteristic rise is the *rise of psycho-motor thresholds.*"—J. M. T.

Nervous and Mental Diseases. By Archibald Church, M.D., Professor of Nervous and Mental Diseases and Medical Jurisprudence in Northwestern University Medical School, Chicago; and Frederick Peterson, M.D., Professor of Psychiatry, Columbia University. Sixth Edition, Revised and Enlarged. Octavo Volume of 944 Pages, with 341 Illustrations. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $5.00, net; Half-Morocco, $6.50, net.

This, the sixth edition of Church and Peterson's excellent work, presents considerable evidence of its right to being regarded as a new edition. Besides many insertions in the general text, it contains a new chapter on "Psychasthenia," to establish clearly its differentiation from neurasthenia. The chapter relating to subjects which bring in the Rolandic area has been remodeled, and new diagrams have been added. The section on "Mental Diseases" has been carefully revised and a new article on "Psychotherapy" added. On the whole, the work, thus carefully brought up to date, is an excellent one, and fully deserves the great popularity it has earned among general practitioners, for whom it was mainly written.

On Infantilism from Chronic Intestinal Infection Characterized by the Overgrowth and Persistence of Flora of the Nursling Period. A Study of the Clinical Course, Bacteriology, Chemistry and Therapeutics of Arrested Development in Infancy. By C. A. Herter, M.D., Professor of Pharmacology and Therapeutics, Columbia University. New York: The Macmillan Company, 1908. Cloth, 90 Cents, net.

In this monograph, Herter studies five cases of intestinal infantilism which he regards as typical, and five additional of shorter duration, and subacute course, which he is disposed to attribute to intestinal infection. He concludes among other features that intestinal infantilism may be due to a chronic infection and persistence of bacterial flora belonging to the nursling period; that the chief manifestations of this condition are arrested in the development of the body, with fair development of the brain and good mental powers; that the dominant bacteria are a Gram-positive organism he designates as B. bifidus and B. infantilis, and a coccal type; that the prominent urinary expressions of this state are the presence of putrefactive products, especially indican and phenol compounds; that the intestinal products include mainly neutral fat, fatty acids, and soaps in marked excess, indicating important fat absorption; that rational interference in cases of chronic intestinal infantilism offers hope of the re-establishment of the processes of growth. Dr. Herter's book represents a valuable addition to our knowledge.

Orthopedic Surgery for Practitioners. By Henry Ling Taylor, M.D., Professor of Orthopedic Surgery, New York Post-Graduate Medical School, Etc., Assisted by Charles Ogilvy, M.D., and Fred H. Albee. New York and London: D. Appleton and Company, 1909.

Dr. H. Ling Taylor is so well known as an authority in orthopedics, that his systematic book will receive a warm welcome. His father, C. Fayette Taylor, to whom he dedicates his book, was his earliest and constant teacher. Dr. Taylor gives credit for assistance to various colleagues, Drs. Gibney, Townsend, and Whitman. It is impossible in the space at our disposal to do more than allude to the fact that the book thoroughly covers the practical experience of a master in this special line of surgery; that it is well written, clear, systematic, and admirably, though not excessively, illustrated.—J. M. T.

Experimental Researches on Specific Therapeutics. By Prof. Paul Ehrlich, M.D., D.Sc. Oxon. Director of the Königliches Institut für Experimentelle Therapie, Frankfort. New York: Paul B. Hoeber, 1909.

Those who are prone to judge the actual value of a book by the name of its author, rather than by its merits, will doubtless speak glowingly of this little book. In truth, it will serve to add confusion to the subject treated, rather than to elucidate it. Ehrlich has never established on a firm basis his side-chain theory, insofar as the side-chain feature itself is concerned; the views set forth in the present volume, being based on this theory, they lack a solid foundation. In the first lecture, he reviews his "haptine" theory—haptines

being substances which connect pathogenic bacteria or their toxins with the cell products that destroy them, while insuring the union of opsonins and bacteriotropins in the process of phagocytosis. In the second lecture, he tries to explain by another theoretic process he terms "atrepsy," the inability of certain cells or organisms to grow in certain animals, by assuming that the specific cellular receptors had previously atrophied. In the third chapter, on "Chemo-therapeutic Studies on Trypanosomes," the author extols polypharmacy on the justified plea that several remedies may concurrently destroy a pathogenic organism while similar results could only be obtained by using large and perhaps toxic doses of a single remedy.

THE PSYCHOLOGY OF DEMENTIA PRÆCOX. By Dr. C. G. Jung, Private Docent in Psychiatry, University of Zurich. Authorized Translation, with an Introduction by Frederick Peterson, M.D., and A. A. Brill, Ph.B., M.D. New York: The Journal of Nervous and Mental Disease Publishing Company, 1909.

The work before us is a trifle too technical to recommend for general reading, and the subject is as yet too unclear from a clinical standpoint. None the less, so carefully does Dr. Jung approach and analyze this, as well as other subjects, that much is presented which makes fascinating reading. Fortunately clinicians are becoming increasingly interested in psychic problems, and as they do this, many obscurities will become clear.—J. M. T.

THE EVERY-DAY DISEASES OF CHILDREN AND THEIR RATIONAL TREATMENT. By George H. Candler, M. D. Chicago: The Clinic Publishing Co., 1907.

This small work of 386 pages is interesting in many particulars. It is not intended for the pediatrist, but for the general practitioner, who, as the author says, is brought into contact with children and their disorders "more than all pediatrists put together." Nor does he believe in therapeutic nihilists; in fact, he asserts that "the changes—normal and pathological—which take place in the human body are fairly constant, and that the right remedy for the conditions present (usually given in small repeated doses to effect) *must* produce definite results." With practically all of us—the exception being the nihilist, of course—the author asserts that "the main thing is to recognize the pathological condition present, and select the proper remedy," and he proceeds to tell his readers how to do this. Each disease is briefly described, and followed by a great number of practical hints which *must* have proven of value in the hands of the author, if we judge from the emphatic way in which each remedy or remedial measure is recommended. As the alkaloidal method is endorsed, many unusual agents are mentioned, a feature which cannot but prove attractive to the broad-minded practitioner.

EXPANSION OF RACES. By Charles Edward Woodruff, A.M., M.D., Member of the American Association for the Advancement of Science, Etc., Etc.; Author of "Effects of Tropical Light on White Men," Etc. New York: Rebman Company, 1909.

Major Woodruff has already earned the position of authority on many important subjects. In the book before us, he has presented the fruition of a life-long series of studies and experiences. In his preface, he says: "This work is an anthropological study of one of the reasons for migration, war, famine, and pestilence, and why mankind, in obedience to natural law, is unconsciously organizing to prevent these disasters, and to make it possible for every babe to reach old age—excepting those meeting unavoidable fatal accidents, and even these become avoidable as knowledge increases."

Again, he takes up the reason for the increase, spread, and organization of populations, together with the checks to overpopulation. The book applies to man the natural laws which are known to govern the spread of all other species of plant or animal. It then explains the relationships of higher and lower races of man, and shows why we expanded across the Atlantic to America in the sixteenth and seventeenth centuries, and thence across the Pacific, and why the higher races must always control the tropics, though acclimatization and colonization are not possible.

The author describes the facts and the laws governing them. He offers no utopian plan for curing nature, but shows that we are governed by natural law to an extent which few or none have heretofore realized. His chapter on the "Diminishing Birth-Rate" will help many who are interested in eugenics. There is much that is not only thoughtful and accurately scientific, but eminently practical in the work, notably in the chapter on "Unnatural Democracy in America," and the "Evolution of Democracies." In short, it is an important contribution to the science of medicine, made by a man of adequate scientific equipment, and a most unusually large and varied experience. It cannot fail to enlighten many subjects by giving them breadth and side-illumination which they must otherwise lack. The style throughout is vigorous, clear, and engaging, and a sufficient index completes the work.—J. M. T.

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Clinical Lectures

INFLUENZA.

BY JOHN V. SHOEMAKER, M.D., LL.D.,

Professor of Materia Medica, Therapeutics, Clinical Medicine, and Diseases of the Skin, in the Medico-Chirurgical College and Hospital of Philadelphia.

PHILADELPHIA.

GENTLEMEN:—The patient before you this morning is suffering from an acute contagious disease, which is caused by a specific bacillus and occurs in wide-spread epidemics. She is 28 years of age; nativity, U. S. A.; occupation, domestic servant.

Family History.—We will not go into her family history since it is negative as regards the cause and heredity of this disease.

Personal History.—She had the ordinary diseases of childhood: whooping-cough, measles and diphtheria; typhoid fever at the age of twenty, and a year ago she suffered from muscular rheumatism. She is married and is the mother of five healthy children.

Habits.—Her habits are good except that she drinks coffee excessively.

Present Illness.—She was in good health until two days ago, when the attack was ushered in with a chill. She had coryza and was constantly sneezing and her eyes were watery. She coughs and expectorates copiously. Her temperature rose to 102° F; her pulse 112, and is small and weak. She is prostrated and feels a distressing pain over the stomach. She is nervous, irritable and unable to sleep at night. She complains of muscular pains over her entire body, but especially in the lumbar region.

Urinalysis.—Color, dark amber; specific gravity, 1028; reaction, acid; albumin, a trace; glucose, negative; indican, marked reaction.

Diagnosis.—The diagnosis of this disease in this patient is easy. The diagnostic features are the abrupt onset, profound prostration, fever of short duration and the muscular pains in addition to the catarrhal symptoms. To confirm the diagnosis in doubtful cases a bacteriologic examination of the sputum should be made.

Differential Diagnosis.—Sometimes this disease may be confounded with simple bronchitis, nasal catarrh and other climatic catarrhal affections. Influenza may be differentiated from these by the predominance of the nervous symptoms and debility over the catarrhal manifestations.

Influenza.	*Typhoid Fever.*
1. Onset sudden.	1. Onset not sudden.
2. Absence of a typical temperature curve.	2. Temperature curve is typical.
3. Absence of diarrhœa.	3. Diarrhœa present.
4. No characteristic eruption present.	4. Characteristic eruption present.
5. Absence of Widal reaction.	5. Presence of Widal reaction.

Influenza.	*Pneumonia.*
1. Lung involvement is usually bilateral.	1. Lung involvement is unilateral.
2. Physical signs of congestion and œdema.	2. Physical signs of consolidation.
3. Nervous symptoms and debility marked.	3. Not so marked.

Pathology.—There are no specific lesions which characterize this disease and the anatomical changes are those of the complications. Intense catarrhal processes are provoked by this bacillus. However, when death occurs as a direct result of the disease, all the alterations in the tissues disappear.

This disease is subject to complications and the most serious of these is pneumonia and is often brought about by exposure. Its symptoms are modified thus making the diagnosis difficult. A common and very serious complication is a severe bronchitis particularly affecting the capillary tubes and leading to broncho-pneumonia. Other pulmonary complications are pulmonary œdema, congestion associated with œdema, pleurisy and sometimes abscess and gangrene of the lungs.

The cardiac complications are purulent pericarditis, endocarditis, attacks of angina and "heart failure."

Of the nervous lesions we have perineuritis, cerebrospinal meningitis, and delirium. These complications are not common occurrences. Encephalitis, abscess of the brain, have also been noted. Other complications may be severe: gastro-enteritis with frequent vomiting and purging and intense abdominal pains, and more rarely hæmorrhage from the stomach and bowels, renal congestion and acute nephritis.

Etiology.—The cause of influenza is attributed to the bacillus influenzæ, which was discovered by Pfeifer in 1892. The bacilli are from 0.8 to 1 micron in length and 0.1 to 0.2 microns broad. They occur singly though they are occasionally united by the ends, forming chains. When stained with Ziehl's carbol-fuchsin it may be observed as a small dumb-bell, having knobbed ends connected by a rod-like shaft. These bacilli are numerous in the nasal and

bronchial mucus whence they are conveyed to others, constituting a true contagium.

The bacilli have also been found in the blood. They occur abundantly in the sputum of the diseased, decreasing in quantity as the case advances. The bacillus is not motile. Inoculated into rabbits and monkeys this organism has proven pathogenic and has produced symptoms resembling those of human influenza. The bacillus can be cultivated in agar and other culture media.

The period of greatest susceptibility is from twenty to thirty years and is more common in those individuals whose vitality is lowered.

The disease is contagious and can travel very fast. Its course may be opposite to that of the prevailing winds. Its mode of invasion is believed by some authorities to be through the alimentary canal with the inspired air through the respiratory tract, and other authorities still believe that infection may take place through the conjunctivæ.

The immunity from this disease is exceedingly short as relapses may be frequent and succeed each other frequently.

Treatment.—Calomel, in my opinion, is the very best drug in the beginning treatment of influenza. In nearly all of these cases, as in this patient, the tongue is heavily coated; the bowels are constipated, and the skin feels hot and dry. These symptoms are indicative of inactivity of the glands throughout the entire body. Calomel combined with sodium bicarbonate will stimulate the glands in the mucus membrane lining the alimentary canal and act as a cholagogue assisting the body in casting off retained waste-products and establishing free portal circulation. Three grains of calomel combined with half a dram of sodium bicarbonate divided into twelve powders and one powder given every half hour, dry, on the tongue is a sufficiently large dose for any patient.

The drug indicated to stimulate the sudoriferous glands and relax the skin is pulvis ipecacuanhæ et opii which will also act as a sedative to the bronchial mucus membrane as well as an antipyretic. Quinin bisulphate and phenylis salicylatis may be combined with the pulvis ipecacuanhæ et opii because of their antipyretic and analgesic value.

We have prescribed for her as follows: Ten grains of pulvis ipecacuanhæ et opii to be given after the calomel had been taken and the bowels had been freely evacuated. Also a capsule containing:

℞ Strychninæ sulphatis ..... gr. $^1/_{30}$
Quininæ bisulphatis ..... gr. iss.
Phenylis salicylatis ..... gr. v.
One such capsule to be given every two hours.

This treatment will soon relieve the patient of her symptoms and in the course of four or five days will be entirely well.

The employment of any of the coal-tar products is not at all necessary in the treatment of influenza. They are dangerous which is comparatively greater than their value.

INFANTILE GONORRHOEAL VULVO-VAGINITIS. APHTHOUS STOMATITIS.

By WM. C. HOLLOPETER, M.A., M.D.

Professor of Diseases of Children in the Medico-Chirurgical College and Hospital of Philadelphia.

Gonorrhœal Vulvo-vaginitis Associated with Cystitis.*

Gentlemen:—The case for consideration is a female white child, age five months suffering from acute indigestion with gonorrhœal vulvo-vaginitis and cystitis.

Family History.—Father alive and well. Mother now in Philadelphia Hospital with tuberculosis. This is the second child; the first is two and one-half years old and quite healthy.

Previous Personal History.—The patient was breast-fed up to three weeks ago, and had always seemed healthy until that time. When the mother was taken to the Philadelphia Hospital, it became necessary to wean the child, so the relative to whose care it was consigned carelessly fed it on whole milk, improperly administered, sometimes boiled, or again milk and water.

Physical Signs.—The child's face is flushed, as you notice, in sections, and it perspires considerably about the face and neck. It coughs now and again, hard and dry, and the buttocks are excoriated. The hands and feet are shrivelled, and there is a rash on the skin. The skin is dark and looks like parchment.

Present Illness.—Started just one week ago. The diapers were very fœtid, stools copious and of white cheese-like masses, intermingled with lumps of green. The child defecated three times a day, some days more frequently, and had trouble and pain in expelling the fæces. A thick yellow pus was also observed discharging from the urethra and vagina. It has now been in the hospital three days. On the first day it had one bowel movement; on the second, six; on the third, two. It has vomited at least once or twice daily, cries on every urination, and sleeps most of the time with its eyes partly open, moaning and moving its arms and legs. It also cries violently on each bowel movement, and the rectum protrudes. The temperature varies from 98.4 to 99.2, pulse 122-130, respiration 24-30. It does not care for the bottle and will not take more than one and one-half ounces at each feeding.

Urinary Analysis.—The urine is milky, and the microscopic examination shows it to be laden with urates and phosphates. The bacteriological report of the discharge points strongly to gonorrhœa.

Diagnosis.—Acute indigestion, acute food poisoning, gonorrhœal vulvo-vaginitis and cystitis.

Etiology.—The slightest abrasion of the skin will allow the entrance of the gonococcus. Cases are on record in which a healthy person was infected

* From a clinic held in the amphitheatre of the Medico-Chirurgical Hospital, April 6, 1909.

by taking a bath in the same tub in which a person affected with gonorrhœa had bathed the day before. Gonorrhœal vulvo-vaginitis is frequently met with in practice, and it occurs generally among the poorer classes where families are compelled to crowd and where conditions are unsanitary. Most frequently the infection is transmitted from the parents to the child by sleeping in an infected bed. The gonococcus most probably is transmitted in this case by careless handling of the child with unwashed hands.

Treatment.—Withdraw the milk. Regulate the diet by substituting barley and plain water, albumin water or meat juice. Alternate these until the tract is free. If the mucous membrane is very sore, give gum water. The excoriated buttocks is due to improper feeding or bad assimilation. Use two per cent. ichthyol in water for it, and remove the cause. Stools that are green with lumpy, cheesy masses are nearly always associated with stomatitis. Observe a careful toilet of the mouth. Give calomel and wash out the bowels. We must prevent cystic irritation, as it is a difficult thing to deal with. Give urotropin, grains two, four times a day for five days, and then liquor potassi citratis dram one-half, t. i. d. This will sterilize the bladder.

Treat the vaginitis by cleanliness and irrigation. A pad should thoroughly cover the vulva and be saturated with a weak solution of bichloride. Should the child show any tendency to scratch the parts, the hands must be guarded so that the infection cannot be carried from the genitals to the eyes. Irrigate the vagina with 1-8000 K mn O_4 once daily. Increase to 1-4000. Follow this with argyrol, ten per cent., or protargol, or Ag N O_3, 2 per cent., twice a day.

For food, when the child's alimentary tract is in better condition, give: —

℞ Skim milk .....ʒxxiv.	Fat, 6 per cent.
Sugar of milk,	Proteid, 1.8 per cent.
Lime water, of each.....ʒij.	Carbohydrates, 3.1 per cent.
Water, (boiled) .....ʒxiv.	

Misce. Sig.: ʒvj every three hours from 6 A.M. to 12 P.M.

Prognosis.—Usually good, though it must always be borne in mind that if these cases are neglected, serious results will inevitably follow. The danger of transmitting gonorrhœal infection by the hands from the genitals to the eyes must always be borne in mind, and infection may spread from the urethra into the bladder, and from the bladder into the ureters and so infect the kidneys.

Aphthous Stomatitis.*

The next case is that of a white male child, five months old, suffering from aphthous stomatitis.

Family History.—Father and mother well. This is the first and only child.

Present Illness.—It has been ailing for four months. During first three months, it was breast-fed, since then has used the bottle. After each feeding it vomited, and the stools were green and foul smelling. It had constant pain,

* From a clinic held in the amphitheatre of the Medico-Chirurgical Hospital, September 29, 1908.

as was evidenced by the drawing-up of its legs and clenching of its hands, also by the painful expression of its face. The temperature was subnormal. Its weight, which should be twelve pounds, is only eight.

Physical Signs.—The child is pale and wasted, with cold hands and feet. Its tongue is coated, and small elevated lesions are present on the mucous membrane of the mouth, pearly in appearance and very sensitive.

Diagnosis.—Aphthous stomatitis, due to careless and unsystematic feeding.

Treatment.—As the child cannot retain anything on its stomach, we will feed it on:—

℞ Barley water ..... fl℥iss.
Milk ..... fl℥iss.
Sig.: Every two hours.

Owing to the poor state of the child's digestion, we must feed it as we would a child of two months. Colonic irrigation will be necessary, and we will also give an oily inunction daily. Aphthous stomatitis often poisons the entire alimentary tract, and for this we will prescribe the following:—

℞ Potassii chlorate ..... 3j.
Acidi hydrochlorici ..... fl3j.
Glycerini ..... fl℥ss.
Aqua menth. pip. ..... q. s. ad. fl℥iij.
Misce. Sig.: Every four hours fl3j.

and apply as a mouth wash after each feeding. Keep hot water bottles to the feet, and thus prevent a further fall of temperature. Plenty of sunshine and fresh air are very essential, and aseptic details must be rigidly enforced in dealing with the nursing bottles and nipples.

Original Articles

MEDICO-LEGAL.

By E. S. McKEE, M.D.,
CINCINNATI.

A Decision on Cut Rate Drugs.

A decision of interest was handed down by Judge Hoffheimer in the Superior Court at Cincinnati, October 3d. The suit was against Raphael Miller, druggist, by W. D. Freeman. Freeman manufactures perfumes and face powder. He sued Miller for breach of contract in agreeing to sell no goods to retailers who would not agree not to sell it for less than 25 cents a box. He stated that the formulas were secret and that in addition to manufacturing, he operated a retail store, the trade of which was injured by the powder being sold at cut rates. He alleged that Miller sold the powder to Cora Dow and other pharmacists who placed it on sale at cut prices and spoke

derogatorily of it, claiming that it contained flake white which was injurious to the skin. He sued for $21,600. Judge Hoffheimer followed the decision of Federal Judge Lurton at Cincinnati (153 Fed. 24) in the suit of John D. Park and Sons, vs. Hartman in which the Court said: "We are not dealing here with contracts which relate to the secret formula itself, but with contracts which relate to and affect only the traffic in the manufactured product of the secret formula." The law applicable to patented or copyrighted articles is not equally applicable in guarding restraint to trade. The judge held that Freeman in manufacturing this article and attempting to control sales and sub-sales is in exactly the same position as any other individual who undertakes to make contracts to restrain trade barring the exception of trade secrets. Like any other merchant or manufacturer, he is subject to the rules of the common law against the restraint of trade and the statutory enactment against monopolies. The Court held that the contract sued upon was illegal and contrary to public policy and the law of the land, therefore, cannot be enforced. Freeman admitted a limited attempt to restrain trade but claimed that it was justifiable to protect his retail trade. Judge Hoffheimer held that what he held for would be a complete and entire control and general restraint of trade. Frank H. Freerichs, attorney for the druggists' association and an ex-druggist filed the suit.

Medico-Legal Matters in Canada.

Dr. R. J. Blanchard, of Winnipeg, president of the Canadian Medical Association, at its recent meeting at Winnipeg, in his presidential address, took up some matters of medico-legal interest. There are 6,000 doctors in Canada, and this is the only interprovincial organization. There was a necessity for closer organization to broaden their efficiency, and by an interchange of ideas and centralization of effort, to develop all lines of investigation. It was the duty of every member to defend the association against the inroads of quackery, and the association should have the power to discipline the members more severely than is possible under the existing circumstances. The matter of expert testimony in the law courts has come to such a pass that it has become a subject for ridicule, and the testimony has been found very unreliable. He found it difficult to understand why the provincial barriers should not be removed and the whole medical profession of Canada placed upon one single standard. Federal authorities he thought much better suited to handle a subject of such magnitude. The laxity of provincial and municipal authorities in taking steps for the prevention of the spread of disease was almost criminal in some respects. Proper precautionary measures are of inestimable value, and those in authority should not be derelict in this. Everything possible should be done to raise the standard of medicine. Not so much by extending the time of study and making it more expensive, but rather by making the examinations more difficult, and weeding out the undesirable, and also giving better facilities for study. The handling of insane patients was like a page from the dark ages, and needed improvement. Reciprocal registration of medical men, since confederation of the

Canadian provinces, has been much desired. Dominion registration has been considered, but that can not be accomplished without changing the British North American Act. There is no such thing as a Canadian physician, in the broad sense of the term. The provinces are as wide apart as if they flew a different flag. The name Canadian Medical Association is itself a misnomer. The organization of a Dominion Medical Council was proposed, which should issue a license to practice which should be so high in its requirements as to be acceptable to any province. This is the idea which is to be brought before Parliament. The four western provinces have practically agreed on reciprocity among themselves. The province of Quebec seems to be the stumbling-block to reciprocity, as it is the only one which allows the professors teaching the students to serve on the provincial board examining these same students. The conditions are strikingly similar to those in the United States.

How to Suppress Quacks and Quackery.

We need a department of public health in the President's Cabinet to suppress quacks in and out of the profession, says Dr. Otto Juettner, in the *Medical Summary*. "I believe in the highest standard of medical education. Physicians should have the right to practice anywhere within the confines of our country, but there should be a Federal law to control and protect them," says the doctor. This is all very nice and proper, but it is against the Constitution of the United States, and it has been found a difficult thing to go contrary to this document. The Constitution puts matters of education completely in the hands of the different States, and I suppose our fathers were wise in this. This whole thing has been threshed over and over. It can only come down to two questions. A change in the Constitution or reciprocity. One seems about as difficult of accomplishment as the other. Further, in the doctor's most interesting article, he says: "The proper way to fight charlatans who usurp practice is by means of greater knowledge, better work and results. Our patients care naught for diplomas, licenses, membership in societies, or what not. They want results. If we cannot produce results, patients will go where they think they can get them. Physicians should not bewail the ascendency of the faker, but remove their own shortcomings, which make it possible for the faker to succeed. The latter would not usurp our work if we were as competent as the times demand. Study psychotherapy, and disarm Christian Science and Emanuelism. Familiarize yourself with personal hygiene, dietetics, massage, hydrotherapy, etc., and the 'naturopath' will no longer compete with you. Don't bewail the things that are, and wish for the things that might be, but study and hustle! The world is too busy to listen to fault-finders, or to people who are thirty years behind the times."

Syphilis, Segregation and the "Shrieking Sisterhood."

Professor Fournier, on hearing of the repeal of the Contagious Disease Acts by the English Parliament, remarked, "Prostitution, and with it syphilis, regained its liberty throughout the British Empire." The repeal of this Act was accomplished by the efforts of a society of fanatics known as "the

Shrieking Sisterhood." This organization used their pernicious influence to hoodwink an ignorant and credulous public, under the cloak of religion and morality. During a recent visit to Winnipeg, to attend the Canadian Medical Association and the British Association for the Advancement of Science, I was made aware of the fact that there were many sporting women in Winnipeg by a religious body, also in session there at that time. This religious body was shrieking itself hoarse about segregation in Winnipeg. It seems that not long since, the Winnipeg authorities gathered up their whores and set them down in a back street, behind the railroad, and quite at one side, which street bears the name of Rachel. Here they are confined, and if the young man wants them, or the old man, either, he must go after them. They do not flaunt their trade where they will, and are not allowed to solicit young men, or to entice young women by their fine clothes and false smiles. They are under careful police surveillance. The diseased are removed to the hospital and kept there till well. Winnipeg is a bright, happy, prosperous city. Her streets are clean, and her population is morally so, at least, it so appears. Syphilis, I am told, is decreasing already, just as it did in Cincinnati, when the *demi-monde* were under inspection by the police and physicians, and it increased again alarmingly when this supervision was discontinued in Cincinnati. Alcohol, tuberculosis, and syphilis, the three great plagues of modern society. The greatest of these is syphilis; the least, alcohol. The Church expends its greatest force against the least of these, while the greatest is tabooed entirely, or encouraged by their fight against its regulation by law, claiming with wondrous want of wisdom that it ought not to be recognized at all, and that it but affords security for debauchery. Were it but the sinner who suffered it were but little compared with the suffering of the innocent of his own household. Police surveillance of the army and navy has reduced syphilis in those quarters one-half. Of course, it is Utopian to expect to dispel syphilis altogether, but to reduce it fifty per cent.—is that not a great deal? That nation which first successfully deals with the problems of the suppression of syphilis is the one which will survive in the struggle for existence. Woe unto those peoples who do not soon bestir themselves on this momentous question!

LIGHT ENERGY IN THE TREATMENT OF DISEASE,*

By J. FRANK WALLIS, M.D.,

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NORRISTOWN, PENNA.

Kabolla declared that light is the primordial essence of the Universe. Ancient and modern research teach us that light is life and how can we believe

* Read before the North Branch of the Philadelphia County Medical Society, December 15, 1908.

otherwise, when we consider that both animal and vegetable life are dependent upon it. Light maintains and supports our existence, our life and health are sustained by the rays of the sun, our food matures under its influence, the clothing and material for our homes are due to its reaction, and drugs and alkaloids are products of the sun's chemical rays. The experiments of General Pleasanton proved without doubt the maturing influence of blue light upon animal and vegetable life. Fruit became of abnormal size and of unusual flavor, and swine became prodigious under filtered blue light. The experiments were followed by Deherain in France, Siemens in England and Cornell University in this country. Therefore, if normal conditions were improved we can readily see the value of light in disease. On vegetable life we have all seen the baneful influence of light starvation. Potatoes will sprout in darkness with abundance of succulent tissue, but with the absence of the familiar green color of chlorophyl always present when grown in the sun. When a plank is permitted to remain upon the lawn for a short time the grass beneath it will become white and die. We are also familiar with the colorless grain that has been permitted to take root under a granery. House plants that have sufficient heat and moisture fail to flourish, but when they are placed at the window they will immediately recover, and every leaf will worship the sun. Forest trees frequently have more abundant foliage and wood on the side facing the light. Studying these familiar lessons in nature, can we doubt that light is life? Disease and death would result, if this factor was absent for a short time. It is necessary for hygiene and sanitation, and according to the studies of Prausnitz, Moment, Buchner and Procaccini, many millions of germs are destroyed daily by the purifying action of the rays of the sun. Germs will not flourish in dwellings and factories that are flooded with sunlight and air, hence the folly of closed and darkened dwellings. Prausnitz has given abundant evidence of the disinfecting power of the sun upon rivers and streams, and Wittlin's experiments prove the destruction of germs in the dust of the streets by sunlight.

Dieudonne found that peroxide of hydrogen was formed when water was exposed to the action of the arc lamp or sunlight. Bactericidal property of light is only possible when in the presence of oxygen, this has been proved by the experiments of Tizzoni and Gattani. They found that the long continued action of sun light upon the tetanus bacillus in the presence of oxygen destroyed the bacillus, also rendering inert its toxines. These experiments were confirmed by Cellis and Fermis. Finsen and Dreyer have shown that vaccines are destroyed by ultra-violet light. This destructive power has been proved by Finsen and others, to be due to the chemical action of the actinic rays. To this property we owe the oxidizing process upon silver salts in photography. Finsen in his experiments proved that sun burn was due to this influence. He painted a black circle around his arm and after three hours' exposure to the rays of the sun an intense erythema developed leaving the part protected by the ring unaffected. When the erythema had subsided he removed the paint, and again exposed the arm to the light. After the same length of time, the area occupied by the ring became intensely inflamed, but the surface previously acted upon by the sun was unaffected, having been protected by the coat of tan or pigment.

Finsen having found these actinic rays capable of inflammatory reaction, conceived the idea of filtering these frequencies by the means of red glass screens in the treatment of small-pox. The red light treatment in small-pox was practiced centuries ago in England, also in China and Japan. Finsen did not consider that the red rays influenced the disease, other than occluding the chemical frequencies. Red light has not only been successful in preventing suppuration and scarring in small-pox, but has had favorable results in the treatment of erysipelas, scarlet fever and measles. That all the frequencies of the spectrum are of special value therapeutically does not admit of question, but in the writer's experience the combined rays from the arc lamp, or high power incandescent light, are much more satisfactory in treating functional or pathological conditions than the use of filtered light. In her work entitled Light Energy, Dr. Margaret Cleaves states: "In the absence of the energy of light as a whole, bodily deformities, intellectual deterioration, crime and disease are found manifested in a higher state than in its presence. When the vital stimulus of light is withdrawn a material as well as moral and mental etiolation occurs."

So true is this statement made by this brilliant advocate of light energy, that I do not hesitate to affirm that many of our criminals, physical deformities, degenerates and the insane, are or have at some time in their life been victims of light starvation. There is no greater proof in this assertion, than the clinical reports embodied in this paper. I have seen the vicious child at the age of three years or older become in the course of a few weeks a normal child under the physiological influence of light. Also the mentally abnormal child assume the faculties of a healthy mind. Most of these children show this abnormal condition shortly after birth, and if allowed to continue to remain unchecked, will fill the criminal list before they have reached adult age. Many a child who is physically and mentally ill has been cruelly punished, or treated with indulgence when it needed a sun bath. The rachitic boy or girl is fed on medicine instead of plenty of sun light, fresh air and nutritious food. I have treated children suffering with rheumatism associated with enlarged tonsils. These children are anæmic, generally poorly nourished, irritable, and mentally dull. If given daily sun baths, kept most of the day in the open air, an appropriate diet with plenty of milk, they will soon get well without medicine. Rebellious skin lesions associated with faulty metabolism will disappear under the same treatment with no special selection of a local remedy.

I have seen a case of refractory psoriasis that has resisted the usual remedies acquire a permanent cure after spending two months in the sun wearing only swimming trunks. Tuberculosis reacts excellently under daily treatment of electric light baths. The disease is assailed through the action of the light upon the life of the bacillus and its stimulation of leukocytosis. It also improves the chemistry of the blood stream increasing the hæmoglobulin and thereby aiding cell nutrition. It is claimed that light has a destructive power on the bacilli in the tissues, but from the experiments of Bernard and Morgan, bacteria have not been destroyed by light when passed through organic tissue, yet short exposures have destroyed the cultures.

The conclusion deduced from their experiments, were that the bactericidal

rays were not penetrative in living structures, but the therapeutic effects of light are due to the unfavorable media produced by its action, and increasing phagocytosis. Nevertheless the experiments of Nagelschmidt in Lesser's Clinic, gives undoubted proof of the destructive action of light on the bacilli in the skin of the guinea-pig. He rubbed into the shaved backs of the animals, living cultures of tubercle bacilli in two places located symmetrically. After the inoculated areas had healed, local changes appeared in the skin, portions of both sides were excised, after one side had been previously exposed to the action of light for one hour. These excised portions were inoculated into two series of guinea-pigs. Eight of the nine of the series treated with light remained free while the other nine were all affected with tuberculosis.

There are few diseases or pathological conditions in which light energy does not have a beneficial reaction. Certain skin affections that have resisted the usual treatment have been cured by light. Forms of acne that are so refractory to treatment have responded to the arc lamp. The affections that have received the happiest results are: Acne, acne rosacea, eczema, psoriasis, alopecia, lichen planus and all pustular conditions including abscesses, carbuncles, boils and leg ulcers, even lupus and epithelioma have responded to the light. Widner, of Vienna, reports the disappearance of an epithelioma by exposures of several hours a day to the direct rays of the sun. Dr. Hirshberg, in 1905, reported the cure of an epithelioma on his ear by exposing it to the direct rays of the sun. He maintains that the treatment must be carried out in the high altitudes of the mountains and in the winter sun, as the ultra-violet rays are absorbed by the dust-laden atmosphere of the lowlands, and in summer there is always the risk of erythema solare if there is prolonged exposure to the sun.

In anæmia, light is nature's remedy. The atoms of oxygen combine with the iron when the patient is exposed to the ultra-violet frequencies. Winternitz has demonstrated that there is an increased percentage of hæmoglobin after each bath. In diabetes, Strebel has reported success in a series of cases. Both the arc and the incandescent light have acted favorably in this affection. In nervous diseases excellent results have been reported by Colombo, Strebel, Freund and Kellogg. I have found the physiological action of light of the utmost importance in treating the various disorders of the nervous system. In neuralgia I have obtained excellent results, relieving pain in ten minutes at the first treatment. Rosenberg reports twenty cases successfully treated with the arc lamp. In forms of neurasthenia, especially associated with malnutrition I have found it of great value. In locomotor ataxia it also does well, and favorable results have been reported by conservative men. Dr. Albert Stern claims that the chemical frequencies of light have been more satisfactory in this disease than any other method. Cleaves has had brilliant results in the treatment of a physician suffering from this affection. In rheumatism it is the remedy *par excellence*. This is one of the diseases in which remedies so often fail. In my experience I find very few cases that do not respond to the action of light. If the infection is through the tonsils I always apply the light to the angles of the jaws as well as to the seat of the pain, also is this

adhered to if the poison is possibly formed in the intestinal tract. Both the arc and the incandescent lamp do well in rheumatism. The electric light cabinets are better adapted for treating this disease. Friedlander found that these cabinets give superior results than the Turkish or Russian baths. Crothers reported great benefit in a thousand cases of toxic neurosis treated with electric baths, he claims that the rays greatly increase elimination and diaphoresis without depressing the heart. The electric light cabinets are of great value in nephritis for this reason.

In the treatment of tuberculosis, I know of no more valuable agent, whether the patient takes daily sun baths in the open air or the electric energy indoors. Although the rays of the sun are of great value, they are only available in summer or warm climates, as the clothing, especially from the waist up, must be removed to stimulate the physiological action through the medium of the skin. The results of this action are described in a lecture given to the nurses of the Henry Phipps Institute, April, 1908, as follows: "These sun baths are of decided physiological action, improving nutrition, stimulating the heart and respiration, thereby aiding assimilation and elimination. Kellogg finds an increased production of carbonic acid, indicative of an increased consumption of hydro-carbon and carbohydrates. The prolonged effect of the light upon the circulation of the skin depletes congested abdominal organs, at the same time stimulating the oxygen storing capacity of the red corpuscle, in a short exposure the whole blood stream will become completely oxygenated, this is possible if only a portion of the body is exposed to the light. According to Kellogg the collateral relation of the circulation of the lungs and pleura to the skin covering the chest, arm and back are associated through the internal, intercostals, subclavian, bronchial, nutrient, and the internal iliac arteries. From this intimate relation between the skin, the lungs and pleura, we can readily appreciate the therapeutic value in the application of light to the chest in tuberculosis. This form of treatment is of equal importance in treating tuberculosis of the throat, glands and joints.

The chemical action of light not only aids in the arrest of the disease by the increased hæmoglobin-carrying power of the red corpuscles, the destruction of pus, the suspension of the growth of the bacilli, the elimination of toxins and its stimulating action on all the nutritive functions, but has a decided physical influence upon the ingestion of foods, and the internal administration of drugs." I have treated in the past three years one thousand patients in my office, approximating about seven thousand treatments with the different forms of electric light and I have selected a few to illustrate the value of light energy in disease.

Case I. *History*:—Female, aged 21 years. When a child three years of age she had attacks of pain in both legs which were more aggravated at night. This occurred at frequent intervals until she was 16 years of age. The trouble then became constant and continued until her twenty-first year. Her first visit to my office was made November 7, 1906. Her manner of standing was most marked, she could not bear her weight upon the soles of her feet but was compelled to stand and walk on the sides of both feet. On examination, the

surfaces of both tibia were roughened and painful on pressure, and with pain extending to the hips, but the hyperæsthesia was limited from the ankles to the knees. She had been treated for her trouble during these years of suffering, but no relief was ever afforded. The treatments commenced November 7, 1906, and continued until July 5, 1907. During this time she had one hundred and fifteen treatments with both the arc and incandescent lamp and fifteen X-ray exposures. The latter were given once a week during the latter fifteen weeks. Relief was afforded after the second week, and her condition continued to improve until July, 1907, when the pain ceased entirely. At this time the irregular surfaces of the tibia were less marked, the hyperæsthesia had entirely disappeared and for two months previous to her last visit she could assume a normal position in standing and walking. Her health had greatly improved and her weight increased from one hundred and eight pounds to one hundred and twenty-two, and she has never had return of the trouble.

Case II. *History*:—Male, aged 39 years. Health had been good until November, 1906, when he had pneumonia and pleurisy. His lung was aspirated twice, the fluid consisted of pus and blood. He coughed continually for six months with purulent expectoration and had frequent hæmorrhages. First visited the office July 12, 1906, six months after first taking ill. He was pale, emaciated and weighing one hundred and eighteen pounds, his normal weight was one hundred and fifty-five pounds, there was dullness over lower lobe of right lung, appetite poor, nausea, temperature from 100° to 101°, he coughed frequently, with great pain on the right side. The patient was given 25 treatments with the incandescent lamp, commencing at first with ten minutes for each exposure, and later extending to 30 minutes. Improvement commenced after the first few treatments, cough became less frequent and pain disappeared after the seventh visit. Last treatment was given October 13, 1907, the patient only had one hæmorrhage during the two months, he gained rapidly in weight, appetite improved. His weight at present time is one hundred and sixty pounds.

Case III. *History*:—Male, aged 60 years. The patient had for the past 18 days a severe pain on the left side of the face corresponding to the distributive of the fifth nerve. Loss of motion on the same side of the face. He did not sleep night or day. The first relief the patient had was after he was ten minutes under the incandescent lamp, the pain returned the following day but was again relieved by the lamp. It did not return after the second treatment. Twenty-three treatments were given 20 minutes each. In the beginning the treatments were applied twice a day, and after the fourth day, once daily. At the end of four weeks the face was restored to its normal functions.

Case IV. *History*:—Male, aged 35 years. Diagnosis, tuberculosis. The year previous the patient was tapped for a pleural effusion. He had a cough ever since he first contracted pleurisy. Twenty-six treatments were given with the arc and incandescent lamp, commencing May 13, 1907, and ending July 27, 1907. At that time the patient's cough was relieved and he had improved in health. His original weight was two hundred and ten pounds and at the date of last visit he weighed two hundred and twenty pounds.

Case V. *History*:—Male, aged 35 years. The first visit made at my office

was May 14, 1907. June, 1905, he fell from a roof 20 feet high, suffering a severe injury of the spine. He was confined to his bed for three months and had to walk two months on crutches. He had paralysis of the bowels and bladder. He was given treatments by the arc light 15 minutes to the back, and 10 minutes to the abdomen. Treatments were given twice weekly for two months, he improved each week and with entire recovery of the functions by July, 1907.

Case VI. *History*:—Male, aged 25 years. Eczema of the face, duration two years, had entirely recovered after three treatments of the arc lamp.

Case VII. *History*:—Male, aged 3 years. Had rheumatic pains in both knees for five months, worse at night, associated with enlarged tonsils. His knees were swollen. The child was anæmic, fretful and slept very little night or day. Fourteen treatments were given with the incandescent lamp, with complete recovery. The visits were made twice a week, 15 minutes exposure to the knees and 10 minutes to the sides of the tonsils. Beneficial effects were marked after two weeks with relief of pain. Tonsils became smaller and anæmia disappeared after the last treatment. The most interesting feature of this case was the disposition of the child. Instead of being peevish, the boy became real jolly, took an interest in his playthings and desired to play with the other children which he never did before.

Case VIII. *History*:—Male, aged 40 years. Carbuncle of the neck, duration one week. The patient was given daily treatment with the arc lamp, six treatments in all, with relief of pain after the second treatment. At the end of the sixth treatment the carbuncle had almost ceased to evacuate. The patient felt so well that he discontinued the visits on account of his business.

Case IX. *History*:—Male, aged 39 years. Infection of the first finger on the right hand, duration three weeks. Had been incised twice the whole length of the finger. Painful night and day. Amputation of the finger had been decided upon by his physician. Seven treatments were given with the incandescent lamp, twenty minutes each daily, with complete recovery ten days later.

Case X. *History*:—Male, aged 25 years. Referred to me by dentist, diagnosed by him as pyorrhœa. The young man's jaws were so fixed that the dentist could not insert an instrument or swab to reach the gums. He could not open his mouth to receive food, depending upon liquid diet for two days. The pain was so severe that he had no rest for two nights. After the application of the incandescent lamp for fifteen minutes, it was possible to thoroughly cleanse his mouth, with the separation of his jaws three-quarters of an inch. His mouth was washed with diluted peroxide of hydrogen and listerin. His first treatment was in the morning, and the second treatment was given the same evening. Pain was relieved after the first treatment, and after receiving the application of the incandescent lamp the second time, he could move his jaws freely, but was yet not able to receive other than liquid diet. After the third treatment the following morning, the young man enjoyed a full meal with an entire recovery after the fifth treatment.

Case XI. *History*:—Female, aged 25 years. Menstruation at nineteenth year. Four years ago she developed severe pains from two to seven days before

her periods, which generally lasted three days, and appeared every three to six weeks. Period preceded by sick headache and nausea, and frothy vomit. Twenty-five treatments were given with the incandescent lamp twice a week. The vomiting and pain ceased after the first month, but until the fifteenth treatment she had tenderness over the left ovary. This improved until it ceased before the last visit.

Case XII. *History*:—Male, aged 45 years. Has had a habit of drinking three to four glasses of beer daily for the past three months. He had tinnitus aurium, vertigo, coated tongue, and occasionally headache, constipation, tenderness in the region of the liver, complains of hearing voices talking to him, but is convinced that it is not real. He was given 23 treatments with the incandescent lamp. He received relief after the first few treatments and this continued until to the end of the last visit.

Case XIII. *History*:—Female, aged 19 years. Stenographer for physician. She had scarlet fever in childhood. Two years ago she had adenoids and tonsils removed. Since she had scarlet fever she has had periodical discharge from the ears, left ear more troublesome. Patient had chronic suppuration of frontal sinus existing since she was first troubled with the discharge from the ears. She had a history of periodical attacks of headache that were relieved with belladonna and local treatment. The patient was left in my care, while her employer was in Europe, with the understanding that I was to refer her to Dr. Harlan, in Philadelphia, when the occasion demanded. On December 15, 1906, the patient made her first visit, she was suffering with a severe cold and headache. I gave her an application of the high-frequency current with a double-pronged vacuum tube rich in the violet frequencies, the treatment lasting five minutes. This was followed with ten minutes exposure every other day until she had taken eight treatments. Certain relief was afforded by these applications until she developed an acute cold or coryza associated with a severe headache. I then applied the rays of the arc lamp for ten minutes each visit. She had taken 24 treatments with no return of the headache since the second application. Fourteen of these exposures were made with the arc and ten by the incandescent lamp. Ten minutes with the former and twenty minutes with the latter and the visits were made twice a week. On May 4th, the patient suddenly developed a severe pain in the mastoid region, it was painful on pressure and slightly bulging, dilatation of the pupils, nausea and vertigo. The patient complained bitterly of the intensity of the pain. Her condition seemed so alarming that I advised her to visit the specialist in the city which she did, but after returning home the pain was as intense as ever, and at her request I applied the light to the mastoid region, also permitting the rays to enter the ear. She was relieved after twenty minutes but the pain returned the same night. She received daily treatments for five days, then every other day, and finally twice a week taking 18 exposures, the pain entirely ceased after the first week. She has had very little trouble with the frontal headaches or the pain in the mastoid region since.

Case XIV. *History*:—Female, aged 10 years. The girl had purpura on both legs from ankles to the thighs, greatly influenced by pressure, more marked

above the knees where the garters bound the skin. This was associated with acute articular rheumatism. Seven treatments were given of fifteen minutes each daily for three days then every other day. Relief from pain was stated after the fifth treatment and the disappearance of the purpura at the last treatment.

Case XV. *History*:—Female, aged 22 years. Acne involving the face lasting since she was seventeen years of age. Treatments consisted in the application of the rays of the arc lamp, using the blue glass screen or filter to control the thermal rays. Ten-minute exposures were administered for the first three visits, then 15 minutes each. For the first two weeks she was given two exposures, then only one a week. At the end of six weeks her face was entirely clear and it has not returned.

Case XVI. *History*:—Male, aged 35 years. Acne, abscesses and keloidal scars on both sides of the face and neck, duration 12 years. The patient was given eighteen treatments with the arc lamp, fifteen minutes each, twice weekly. The first visit was made at the office March 8, 1907, and the last visit was April 28th. His face was entirely clear at this time, and had not had a return of the trouble since.

Case XVII. *History*:—Male, aged 4 years. Had whooping-cough when two years of age, and ill health, his mother states, dates from that time. On his first visit to the office the child exhibited pronounced anæmia and with a history of being vicious, at all times irritable, easily aroused to fits of passion on the slightest provocation, punishment only aggravated his condition, so he was more frequently indulged. His appetite was poor and perverted and he suffered constipation. He cried and complained with severe pain in his abdomen associated with frequent attacks of cramp-like seizures. On inspection his belly was abnormally large and painful to the touch. The first treatment was given September 4, 1908, with the incandescent lamp. The light was applied to the abdomen in the region of the greatest tenderness for fifteen minutes. The child refused to lie on the table and resisted force and attempted to kick his mother in the face and chest, he had to be held on the table. The second treatment was three days later, he seemed to have less pain since his first visit, he did not resist being placed on the table but refused to have his abdomen exposed and persisted in pulling his undershirt down. The third visit was made four days later, the child sat on my lap, played with my watch and seemed interested with objects in the office. The mother stated that he complained of very little pain, had had no attacks of cramps, and the bowels moved without medicine, was cheerful during the day, took an interest in his playthings and slept well at nights. He did not object to treatment. From September 4th to October 14th he had nine treatments commencing at first with two visits a week, and later one weekly. I advised the mother to continue the treatments but as her means were limited the visits were suspended, with the promise that she would bring the boy back at the first return of the trouble. I consider this a very remarkable result of the therapeutic action of light. At the time of the last visit the transformation of the boy was astonishing, he wanted to play with other children, tried to sing and whistle, took an interest in picture books, and ceased to be destructive.

His anæmia disappeared, appetite improved, the pain had entirely left. He was an entirely normal child, and was saved from the possibility of becoming a criminal if he lived.

Case XVIII. *History*:—Female, aged 28 years. Tuberculous ulceration of the skin over the knee, duration six years. Two sisters died of tuberculosis, the last one a short time before the trouble with the patient began. The lesion appeared after an injury to the knee and did not differ at first from an ordinary inflammation except that it failed to heal. Ulcers developed close to the original site, some slowly healed leaving angry looking violaceous colored scars. Inspection at the first visit revealed an irregular-shaped ulceration as large as a half dollar formed from two ulcers coalescing, the edges were ragged and dark in color, the floor was superficial and discharging freely. There were scars of previous lesions on the knee. The patient was subject to eczematous outbreaks. She was given treatment with the incandescent lamp twenty minutes each, having at present twelve exposures. The treatments were given twice a week. Her visits commenced September 21, 1908. The lesions at present are now healed over and have been in that condition for the past two weeks. Since the improvement in the ulcers the eczema has become troublesome involving the face, arms and legs. It looks as if the healing of the tuberculous ulcers has possibly disturbed the cutaneous equilibrium. It is my usual custom to treat discharging tuberculous lesions with a number of exposures of the electric light before applying the X-rays, which was my intention with this patient, but the rapid improvement under the incandescent lamp was a very satisfactory reason for continuing this method.

MEDICAL AND SURGICAL TESTIMONIES ON THE MUMMY GROVE POTTERIES OF OLD PERU.

By ALBERT S. ASHMEAD, M.D.

At different occasions I have called attention to the representations of mutilation and disease on faces and limbs in many examples of anthropomorphous ancient Peruvian clay vessels, called by scientists "Huacos," wine or water bottles, found buried with corpses.

Dr. José Macedo, in the year 1876, exhibited in Lima his famous collection of these objects. One of these appeared, as he thought, to be the symbol of death: the face was more like a fleshless cranium than a living face. The person represented was striking a timbrel, and at its feet were figures dancing, playing wind instruments; their faces were funereal as also were their vestments.

Dr. Palma has published a huaca showing the face of the man, represented, as diseased—nose and upper lip eaten away. About the body of the bottle was a bas-relief, showing eight persons dancing, holding hands. One of these images had a skull for face, with hands raised in an attitude of supplication. I myself published a plate given me by Prof. Mead, of the American Museum of Natural History, New York, showing several persons dancing, while

musical instruments were being played upon, and on the ground were placed several vessels, evidently holding wine. One of these figures had in place of a foot a square block of wood. Evidently these dancers had relation to disease, or crippling, or death, and were connected with the huacas potteries, for they danced around them.

Dr. Macedo has four heads (huacas) with all the deformities of syphilis as produced in its tertiary manifestations. One with its skin covered with tubercles more or less prominent, which might be verruga or some other eruptive disease. Another represented a monarch seated on a hill, the left hand rested on the knee, the right one broken. A third one was that of a blind person playing a flute, giving one a clear idea of the sad expression of a beggar. Another was a huaca from Chimbote, a careless idol as it appeared, its face very grave, with crown and earrings and necklace of spherical form, having in the right hand a human head, seized by the hairs, and in the left a cutting hatchet, which appeared to be the instrument that had decapitated the prisoner.

Ch. Wiener shows in his "Perou et Bolivie" a subject of full length, with disease of skin, for the person was in a grievous attitude, scratching the body with both hands. Wierner thought this represented syphilis, but it does not itch. I myself published in *Archives of Surgery* a figure, similar, which Jonathan Hutchinson interpreted as *Molluscum fibrosum*. Wiener gave the same definition for a head, which represented squinting of the right eye and with mouth diverted. This I interpreted as a form of paralysis. Wiener said that both these examples were derived from Puno, a syphilitic region of Peru. Prof. Virchow thought that the first one represented some form of itch, in which wonderful interpretation there was not necessarily required much scientific wisdom.

Dr. Lehmann-Nitsche, of Buenos Aires, has published a huaca, showing nose mutilated, upper lip eaten, and with the lower lip partly eaten. This last had not been observed in any Peruvian vessel down to date. From the photograph of this image the lower lip appeared to have lost a part; the mutilation was distinct.

Dr. Palma has shown an image with evident lower lip lost completely. The person is represented seated in an easy attitude. It has a small part of the nose cut off. The two lips have been barbarously cut off, down to their base; the section is lateral and very extensive, leaving a portion of the checks, but the molars are completely uncovered. The feet of this image are amputated at the ankle joint. The stumps are healed with suture transverse. It was the first time such an example of amputation of both lips has been described. The other huaca of Dr. Palma's was a *black huaca* delicately worked. It presents the nose mutilated and deeply sunken in; the upper lip is *cut off* in triangle permitting the teeth to be seen; the lower lip appears sectioned, also permitting to be seen the teeth; the feet of this image are not visible. In the middle of the forehead is noted a kind of tumor sunken in, and pared off at its borders, but prominent in its centre. On the head are two large tumors, the right larger and more elevated than the left, like two ulcerations, one round, which is seen front face, the other longer and seen posteriorly. The left presents only

one of these apparent ulcerations. The abdomen of this image is shown full of lumps and depressions, or irregular furrows in all the parts, giving the illusion of tubercles on a potato. Underneath the left axilla, radiating to the costal wall, is noted a voluminous tumor, rounded and flat all over, except in front, where there is a furrow. In order that this swelling may be more visible, the patient is shown with his left arm pulled away and in front or aside, with his right hand. Asymmetrically arranged on the sides of the patient's neck are seen other bullosities.

These lesions have never before been observed in the mutilated anthropomorphous huacas.

Dr. Lehmann-Nitsche also exhibited a huaca with the nose eaten, and the mouth lesioned by disease, not cut. Another had the point of the nose lost, upper lip mutilated in the form of triangle (cut off), and the eyes closed. Is he blind? The feet of this person are amputated, sutures transverse, stumps healed. He holds in his right hand a drum. Here, evidently, is some relation between the drum and the sick dances and superstitious medical relief, by appeal to witchcraft, to drive out the evil spirit.

Dr. Lehmann-Nitsche also published a figure lying on its belly; the nose and both lips lost, as also were the feet, sutures transverse. A similar one was published by myself in the Berlin Leprosy Conference Transactions.

Dr. Palma has shown a huaca representing a woman lying down. Looking at this huaca from behind, long hair is noted; also, that the head is supported by a block of wood, wrapped up so that it serves as a pillow. The nose and upper lip are cut off, for the loss is triangular-shaped, letting the gums and teeth be seen. The feet are amputated at the tibio-tarsal joint. On the face are seen painted rays, in the guise of ornament. In no other collection is their such an example representing a patient in the bed.

Dr. Lehmann-Nitsche also showed a huaca representing a person on the knees, with a stick in the right hand, the feet lost by amputation that had healed; stumps in sagittal suture. Only the nose was mutilated. The whole right cheek was occupied by the drawing of a right-angled triangle, which in its interior has rays that cross perpendicularly forming squares. On the left cheek are two parallel rays. On the chin is a bug, like a beetle. "Does this represent," asks Dr. Lehmann-Nitsche, "the disease which has corroded the nose?" It may be an error of the artist, but six fingers are made on each hand.

Dr. Lehmann-Nitsche has said: "I may be permitted to express my opinion, that much doubt exists as to whether the mutilations of the nose and upper lip have any etiological connection with the feet. It appears to me that these cases treat of invalid beggars, that have acquired the diseases which are contracted in wretchedness."

Dr. Lehmann-Nitsche has also published a huaca (*Patologia en la alfareria peruana*), a very rare exhibit from the Garcia Meron collection. It represents a beggar who presents a dish with his right hand in the attitude of supplicating alms, whilst with the left he carries a stick, like a cane, to creep along with more ease. This vase presents superficially on the inferior part, simply the

left leg entire, whilst the right one terminates in a stump. There is no other mutilation shown on the whole figure.

"We must admit," says Dr. Lehmann-Nitsche, "that this beggar had lost his leg by a misfortune, or that it had been amputated according to the art of Æsculapius for some reason, but it may be supposed that it might have been for some disease of the leg, that required him still to carry it bandaged, for it is easily recognized that there is a dressing by the bandage being the same color as his shirt."

I myself have expressed the opinion that the musical instruments in the hands of so many of the mutilated persons represented on the huacas, in suppliant attitude, do not signify that beggars hold them for reason of their mutilation, but rather that diseased persons make use of them for superstitious relief from their evil condition. This opinion is corroborated by the evidence of the sick dances.

Dr. Carrasquillo has said that the amputations represented on the huacas vases were due to punishments for crime, but all scientists have disagreed with this eminent South American on this point. That question has been ruled out, yet it may be interesting to refer to this subject as surgical treatment requiring amputation of the feet is exhibited in so many of these huacas.

In a huaca of the Gaffron collection of Lima there are shown lateral symmetrical mutilations on the wings of the nose, with the head inclined downward and the person contemplating the sole of the foot, which is held by the two hands. The sole of the foot presents a sieve-like surface with numerous perforations, showing multiple perforating ulcers, just like some Peruvian diseases might produce.

Mr. Mead, the assistant curator at the Museum of Natural History, New York, who furnished me with the photographs of this pot, said he believed the cavities in the sole of the foot represented the little holes left after the extraction of the sacs of the eggs of a specie of insect called *Musca de Arena.*

I rejected this idea, as the nose and lip of this subject were also shown mutilated, but Dr. Palma, in reviewing this question, points out that the mutilations of the nose and of the mouth have borders so very straight that they appear made with a knife, and the lesions on the foot are represented by many semispherical holes, excavated in the skin.

That the same disease which produced the mutilation on the face, even if requiring surgical relief, could have produced the lesions of the foot is doubted by Dr. Palma, because *uta* principally does not affect the feet. Uta, as I understand the word, is corroding ulcer, and whether it applies really to the uta of Peru, as Dr. Palma knows it, or to some more serious complaint, which does attack the feet in the coca and rice countries, is of small account. The condition of ulceration, of gangrene, of phagedena, is what I mean by uta, and this *does* attack the feet and destroys them, *rots them off,* in Peru and Western South America. The *llagas* of Pangoa is the worst kind of uta (corroding ulcer), and rots the feet off, unless amputated, so does *Espundia* of Bolivia.

Dr. Palma has referred to a photograph I sent to Dr. Grana, given me by Prof. Dorsey, of the Field Columbian Museum, of Chicago, of a pottery in

his possession, showing the head thrown backward, evidently by spinal curvature, and he disputes my statement that tuberculosis of the spine (caries of the vertebra) might be responsible for the deformity. He makes the point that uta is not a skin tuberculosis, and therefore could not be the cause of this curvature. I do not know whether all the utas of Peru are not tuberculosis, but presume some of them are. The artist-potters show here, at any rate, a condition which must be due to an injury or to disease, and the most plausible solution of the latter problem would be to consider it either tubercular or syphilitic.

Dr. Palma has published a huaca, which is armless, and says that beneath the shirt sleeves of the image may be seen stumps, showing that amputation was performed. This image is that of a kingly looking man, with an unusually high forehead and nobleness of face. His nose is finely moulded—Roman, and all his features show him to be a man of power. There is no evidence of disease at all about him, so we cannot even hint at amputation for disease. Perhaps this was a criminal's punishment, yet he does not look a criminal, but rather like one who was a chieftain. Was he taken prisoner and were his arms lost in battle? No one can interpret this amputation. It is, however, very interesting, for it is rare to find amputation of the upper members. This is the only one I ever saw. The arms of this image have been amputated above the elbows, not merely the hands.

Regarding the question of beggary, as some scientists believe to be represented on the huacas potteries, Dr. Palma quotes from the ancient literature of Peru, showing that the ancient laws provided against the necessity of begging. Means were assured in the communities for the State care of paupers. He quotes from Garcilazo, "As to the order of government, relating to the care of widows, orphans and the aged and diseased. How they furnished seed and put aside tithes for the support of village poor." Garcilazo even asserted: "There are no poor beggars." Down to the year 1560, supplication for alms was guarded against. In walking he never saw an Indian begging. But only in Cuzco he saw old women, who were called "Isabels," who begged, after playing the buffoon, from house to house like gypsies. He quotes Ciezà de Leon to the same argument; also Herrera, as to the government of the Incas against beggary, and equity and tithing to support the poor, part of the land being set aside to be cultivated for the support of the poor.

Carrasquillo, Bastian, Middendorf, Sommer and others, have thought that some of the mutilations on the huacas represented effects of punishments applied for certain crimes. Dr. Palma has quoted from Zarate about the servants in charge of the lord of the isle (Incas), who had charge of the women having their noses and virile members cut off. Ovieda is quoted from to the effect that as penalty they plucked out the eyes for some delinquencies. And from Gomara, who says that ancient Chibchas cut off noses and put out eyes for certain faults.

But it is alleged, in refutation, that the Chibchas had no relation with Peruvians, that only on ornamentations of the clay vessels are represented these dances, customs, scenes of the chase, decapitations, etc., or punishments of this

kind, and that in the vase itself they recorded things, many of which the potters never had seen.

In the work "Monographia Historia-Americana," of Senor Larrabure, there are reproduced painted figures on a great plate found in a tomb. There is seen here a criminal, naked, who with the right hand holds the nose, whence springs much blood. He carries a rope at his neck, caught at its end by the police who conduct him. He follows another pair, probably across country, as appears from some far off hills, and there is a bird flying over them. This other punished one is in the same attitude as the preceding one, and there are noticed also drops of blood which fall from his nose. It appears that they have had cut the mouth, prolonging it back to the ears. The police conduct them with a rope, and behind all comes an official.

The plate is made of ancient clay, and is, without any doubt, of value in sustaining the hypothesis of Dr. Carrasquillo, that criminals were mutilated for crimes. But it has no relation to the exhibits of the huacas potteries, where undoubtedly diseases of several kinds are expressed by modeling.

The chroniclers, Herrara and Garcilazo, relate some interesting passages, which have been exploited by Carrasquillo, and by those who participate in his opinion regarding the question, now almost forgotten.

Dr. José Torebro Medina in his work "La Imprenta en Lima," copies an anonymous resolution on the government of the Incas, where is read: "If they go to be punished for some transgression they are called *hochay carcamayoc,* which means to say, 'By which they have incurred punishment for transgressions,' and those which gave death were in advance of all and very cruel; to some they gave pain and to others they cut off members, and made other cruel punishments."

Don Francis de Toledo al Rey signalizes death as most general punishment, though they had also other punishments; he mentions nothing specific. Analogous data, some of much value, from historians have served to sustain the hypothesis that the huacas with mutilations represented punished individuals, but to-day this is not admitted. We do not deny the punishments, but deny their exhibit on the huacas.

The question whether certain customs, or superstitious practices of the Indians, in virtue of which they disfigured the features, might be here gone over. Certainly such practices existed, and might produce some alterations which artists may have wanted to reproduce in clay.

The historian, Garcilazo (who is very unreliable as a recorder), cites the following (speaking of Cali): "They dress themselves and their noses, placing in them what they call *caricuris,* made of twisted nails of gold so gross as a finger, and others more or less small."

Ciezà de Leon relates of Puerto Viejo: "That they draw out three teeth of the upper jaw, and other three from the lower, after they have appeared, and they draw out the three teeth, the father from the children, when they are of very tender age."

And speaking of the foundation of Guayaquil: "Immediately on entering in, the teeth are drawn out for sacrifice, and according to ancient customs and

in honor of the wicked gods have they the teeth drawn out." In another place he says: "In some of these towns the caciques and chiefs have the teeth nailed with points of gold. And the inhabitants of the village of Ancernio have the nostrils of the noses opened to put in something like balls of fine gold, some small, others large."

Augustin de Zarate says, speaking of the Isle of La Puna, and on firm ground, where they have some towns in which, for anger they caused to the Senor of Peru, he gave as penalty that they draw out the teeth of the upper jaw, and this they do to this day. Men and women go about with their teeth drawn out.

He refers to a place called Catanez, a land of much food, and moderately populous, where all Indians who go to war dress their faces with nails of gold in pieces on which they hold things.

Herrera in his "Decadas de Indias" writes: "They sacrifice some of their neighbors with whom they make war. They believe in immortality of the soul. The Incans also worship the Sun, drawing out three teeth from the upper, and three from the lower jaw, because they think that this makes grateful service to God."

A. Le Pinart cites that young mothers lose the upper left canines. At the time of the first menstruation, during the feast given with this object, they break this tooth to show the nubility of the girl.

Jimenez de la Espada, in a work on the "Iscaicingas," describes a form of mutilation of the nose. He speaks of a very ancient people who thought more than of their wealth and their corpulence of the strange disposition and conformation of their face which was provided with two noses in the manner of a certain breed of pointers, which they judged to be the natural thing and of proper shape, and it is of the same kind of native or believed to be so, of the chroniclers, who spoke of the olfactory organ and of their women. They are great in body and have the noses torn in the wind places and by having them of that sort they are called "Iscaicinga" which is to say *two noses.*

He speaks of other people who have bored the pulps of the ears and pricked them with stalks or irons, who have the cheeks bored, and chin opened like a buttonhole and lower lip with a stone in it. They pierce the nose at the gristle and on both sides wear plumes, or thorns or egg shells and with a piece of the skin drawn out in a long strip. He speaks of the Iscaicingas making themselves look ferocious by the repulsiveness of their split noses, giving them a terrible and horrible appearance to frighten their enemies, which is common motive among American savages and might explain the strange noses. Three hypotheses he gives for these disfigurements: (1) Reasons of symmetry; (2) to allow greater olfaction; (3) to imitate the monkeys. He speaks of a huaca like this, in the collection at Cuzco, of Dona Rosa Centano, and another in the Ethnological Museum of Berlin, which have the noses divided. Perhaps those represented with lips wanting, showing the teeth of both maxillaries, he says may be voluntary mutilations.

Even admitting that the two-nosed deformation in a tribe was the result of legend transmitted from the Pagansos, it does not appear credible that the

mutilation is wholly explained. There must be some other reason, perhaps pathological or teratological. He mentions uta among the first, which is "a kind of endemic lupus of Eastern Andean Mountains, which principally destroys the middle part of the upper lip and the mucous nasal cartilages, and in its spread quickly in the face of the patient gives an aspect like the Iscaicinga." And among the second, "the anomaly of the leporine lip is not rare, the double nose by natural separation of the gristles, which ordinarily are held together on the internal faces, except at the point of the nasal wall."

Besides these considerations of this whole subject, we must also mention what is due to adoration. There are not lacking in the sacred catalogue of pious Quechnas, "men of the split lip," "men of the parted nose," "ears of corn," or "double corn," and "men of the double noses." In the Archæological Museum of Madrid there is a splendid specimen of huaca, representing an Iscaicinga.

The Ytucales cut off the skin of the nose with a file without disuniting it at the tip, they wrapped it up in a peel of palm leaf, and kept it as an emblem of prowess in war. They gradually came to cut off more and more of the skin, and rolled it in a way to form a united arch at the base near the eyebrows. To these they gave the name of Singa Cuchascas, or men of the nose cut off.

The Cutinanas made the same for insignia of warriors. Referring to this in 1557 it was said, that in a province of natives called Capilacora they had an invention of noses not seen anywhere else in the world.

Among the ceremonies of ancient Peruvians there are some of religious character which carried to extremity human sacrifices, inspired by superstition, which some have thought might explain the representations made on the anthropomorphous huacas.

Among the sacrifices made to their gods, however, they never practiced mutilations, which would permit the survival of the subject. Cobo, Molina, Las Casas, Herrera, Ciezà, and others, corroborate this. These narrate that in certain feasts, they made human sacrifices, even interring persons alive, or those to be made ready were suffocated or punished by another class of death. Inca Yupanqui had great feasts, idolatries and offerings in the worship of the Sun. For ten days preparations were made with provisions of corn, sheep, ewes and lambs, and fine clothings, and a certain number of boys and girls for sacrifice to the Sun. Inca Yupanqui then commanded a fire to be made and the ewes and lambs were beheaded and thrown into it, and the cloths and corn were offered all to the Sun, and the boys and girls, which were met, were well clothed and adorned, and he ordered them to be burned alive in that house where was the cult of the worship of the Sun.

Garcilazo speaks of the sacrifice of men, women and children. They opened first the chest, while living, and pulled out the heart and lungs.

Francisco de Xeres speaks of sacrifices where with the blood of their own children they anointed the faces of idols and the doors of the temple, and tops of sepulchres of the dead, laughing and dancing and singing, while they go willingly to death, those who are to be sacrificed, being satiated with drink before they cut off the heads; they also sacrifice ewes.

Garcilazo says some other Indians have no such cruelty in their sacrifices;

that, although they mix human blood with their sacrifices, it was not by death, but by drawing it from the arms and legs, and that they drew out at birth from the noses at the junction of the eyebrows.

It is undoubted that those artists, who have bequeathed to us the clay vessels representing individuals with mutilations, constructed some models symbolizing superstitious ceremonials or dances related with disease, and patients in the state shown by the huacas and models by this way sought, by that intermediation, and by supplication to the gods to be freed from the disease.

It is known that medicine of ancient Peru had much that was practical and rational, but also there entered into it a great deal of witchcraft, giving fanciful capacity to the different superstitions and adorations, in which there were dances and ceremonies to idols, to draw out the evil from the body of the patient. Thus the dance in the bas-relief of the huaca, I have spoken of, would represent the disease of the dance, *Taqui-Onco,* or perhaps they were using it as an idol to petition the gods for the cure of some other affliction. It is seen clearly, there, that it was not a reunion for mere pleasure by the presence on it of a mother with her child, in suppliant attitude, with face very much disfigured, which if you look at it with care, may be divine as the same disease which applies to the figure which crowns the jar. And in effect, "in some parts there is given a disease of the dance, which is called *Taqui-Onco,* or *face-onco,* for whose cure they call in witches, or go to see them, and they have a thousand superstitions and witcheries and other ceremonies. (Instruction against the ceremonies that the Indians used conforming to the time of their infidelity. Confesonario para los Curas de Indies, con la instruction contra sur Ritos y Exhortación para a yudar á bein morir. Los Reyes, M.D.L., XXXV. Reproducida en Revista Historica de Lima, Tomo I.) "And, when the lords were deceased, according to Ciezà, to appease the ire of the gods and to petition them to make them well, they made other sacrifices, full of superstitions, killing men, according to what I have related, holding for greatest sacrifice that which they made with human flesh. And to make these things, they had drums and hand bells and idols." . . .

(To be concluded in the next issue.)

Editorial

SPECIFIC REMEDY IN THE DIAGNOSIS AND THERAPY OF UROGENITAL TUBERCULOSIS.

Dr. Wilhelm Karo, *Münchener medizinischen Wochenschrift,* No. 37, 1909, records the treatment of urogenital tuberculosis both by the ophthalmo-reaction and subcutaneous injections of tuberculin, and reports a number of cases as to the beneficial effects and results obtained. He states that we are, at

the present time, in doubt concerning the ophthalmo-reaction and its results are not definite and therefore we have no conclusion that we have tuberculosis in the urogenital system. As to the possibility of being misled by the ophthalmo-reaction, Dr. Casper in the Society of Internal Medicine, 1908, reported a case of a woman who had pus in the urine, the source of which was proven by the cystoscopic examination. Upon the application of the ophthalmo-reaction a diagnosis of tuberculosis of the kidney was made. In spite of the painstaking clinical investigation they were unable to demonstrate the presence of tuberculous invasion in other parts of the body, and to his surprise, upon operation, did not find any sign of tuberculosis except twelve kidney stones.

Similar observations have been experienced by others and cases are also reported where the ophthalmo-reaction was negative, and upon operation the kidney was found to be tuberculous.

It was also observed in a woman 28 years of age who since her childhood suffered from cystic catarrh of the bladder, and who was compelled to undergo an operation on account of the contractions of the bladder. In this case the ophthalmo-reaction was negative and upon operation the right kidney was normal but, however, a typical miliary tuberculosis of the left kidney was found in spite of the negative ophthalmo-reaction.

Another case occurred in a young lady who suffered of difficult micturition, often had pains in the left side, and also had pyuria; and in whom there was a suspicion of tuberculosis on account of swelling of the left knee. The ophthalmo-reaction was negative. Upon cystoscopic examination the bladder was normal, and upon further examination tubercle bacilli were found in the left ureter. In all these cases tubercle bacilli existed in spite of the negative findings of the ophthalmo-reaction. Consequently the author states that we are unable to draw conclusions as to the diagnosis from the ophthalmo-reaction.

However, the author highly recommends tuberculin injections and he states that they are of great value for the diagnosis, and, moreover, it has proven of value in a large number of cases and, therefore, we can rely upon it.

He also reports that about three months ago a young girl who had for many years suffered from difficult micturition and pain in the region of the right kidney. Her urine was slightly turbid and contained tubercle bacilli. Upon cystoscopic examination the bladder appeared normal while the opening of the right ureter was slightly swollen. After a subcutaneous injection of 0.25 milligram old tuberculin the patient experienced pain in both kidneys which, however, was more pronounced in the left. At the same time the urine became more turbid and contained tubercle bacilli. After subsidence of the reaction he also catheterized the left ureter and found tubercle bacilli in the urine of the left kidney. Drs. Hock and Birnbaum have found the diagnostic value of the subcutaneous method so beneficial that they have employed it constantly. Another case is reported in an eight year old girl in whom tuberculosis of the right kidney was suspected. Under cystoscopic examination the bladder was normal except a slight ulceration of the right ureter. The right ureter was catheterized, and in the urine pus and tubercle bacilli were detected. The patient received thirty injections of old tuberculin (Koch) having the first injec-

tion concentrated, beginning with 0.0025 milligram old tuberculin and gradually increasing up to 10 milligrams. The result was splendid. The child gained eighteen pounds in five months. After six months the bladder was found healthy, urine clear and no tubercle bacilli.

The author advocates this treatment very strongly and that a radical operation for urogenital tuberculosis should not be undertaken. He says: "Only remove the kidney when there is a strong reason for doing so. The tuberculin injections are also of value after the patients have undergone operation. These injections help to guard against new infection of the wound and of the bladder. Good results have also been obtained in the treatment of tuberculosis of the testicle."

Materia Medica and Therapeutics

CAMPHOR IN DIGESTIVE INTOXICATIONS OF INFANTS.

Dr. Wurtz states that camphor is an excellent remedy in these cases. It acts as a tonic upon the heart and as a stimulant of respiration. When it is administered in the form of a powder it is absorbed with difficulty. The best way to give it is in the form of an emulsion, or in hypodermic injections in oil, every three hours. The treatment was continued until the child was able to support proper food. In one case as many as fifty-nine injections were given within ten days with the effect of saving the child. The author believes that by this means many lives may be saved in the most desperate cases of infantile diarrhœas. (Münch. med. Woch., 1909, No. 3.)

DIONIN IN KERATITIS AND IRITIS.

Dr. Chas. J. Scott, of Parkersburg (correspondence), reports that he is using dionin in several diseases of the eye with the greatest benefit; that it is not a cure "all" but a very valuable assistant to other remedies.

Dr. Scott states: "In all kinds of keratitis I have found it most valuable. My plan of using it is to draw down the lower lid and dust in a piece of the actual powder the size of a pinhead, that I have picked up on the flat side of a new wooden toothpick. The first time it produces severe hyperæmia, but when the patient comes back the next day for another treatment he is better. I use atropin or eserin, and also the cautery, where necessary, making the dionin an accessory.

"In iritis, the time in which my patients get well has been cut in half by the use of dionin, together with the other remedies.

"Of course, one must use syphilitic treatment where the cause is syphilis; antirheumatics where from rheumatism, etc. (Merck's Archives, Sept., 1909.)

ELECTRICITY IN ILEUS.

Dr. F. Sejars occasionally has witnessed good effects from application of electricity in ileus, and thinks that this method should be a routine measure in hospitals, at least. When the occlusion is incomplete, and the result of prolonged constipation, electricity, applied early, is an important aid in treatment. But in occlusion from cancer it should be used with great caution. Complete ileus con-

traindicates more than a single test application of the electricity, the physician being ready to proceed with a laparotomy at need. Whenever there is a suspicion of appendicitis or peritonitis, electrical treatment is strictly contraindicated and dangerous. Under other conditions, if applied gently, with a medium current and without too frequent interruptions, it is not dangerous in itself, but may become so if too prolonged or too often repeated. He refers especially to the method introduced by Boudet of Paris, twenty years ago. (Semaine Médicale, Paris, Aug. 4, No. 31, pp. 361-372.)

GUAIACOL AS AN ANÆSTHETIC AND ANTIPHLOGISTIC.

Dr. Hecht reviews the history of guaiacol in local treatment of neuralgia, neuritis, gout, chronic rheumatism and traumatism, in the form of a salve, and for application to the surface of the chest in lung pleura and febrile affections. He advocates a ten-per-cent. solution or salve and reports excellent results from it in various cutaneous lesions, including erysipelas, furuncles and herpes zoster. There are no untoward by-effects unless too large doses are used, over 1.5 or 3 grams (22.5 or 45 grains). The author regrets that guaiacol is not used more for external application as its properties deserve. (Therapie der gegenwart, Berlin, July, 1909.)

GUNSHOT WOUNDS OF THE HEAD, TREATMENT OF.

Dr. Paul F. Eve is fully impressed that it is the surgeon's bounden duty to remove the bullet in every case where life is not too greatly jeopardized and too much brain tissue involved. Even should there be no cerebral symptoms, if the bullet can be extracted it should be done by all means, as it is impossible for any one to tell the future symptoms which may arise, or that the bullet may not be the indirect cause of death. In every case where removal has been accomplished, thorough drainage should be established the entire extent of the wound, an antiseptic dressing applied and the head so placed as to favor drainage. (So. Pract. July, 1909.)

HYSTERIA, TREATMENT OF.

This sometimes involves a rather complex therapy. On the whole it is suggestive and environmental. The temperament, surroundings, social status and general mental index must be carefully taken into account. In nearly all women manifesting a hysterical trend, there is obstinate constipation with anæmia, or autotoxæmia. Such cases do not need iron. They need exercise in the open air and sunshine, and that with a paucity of clothes on. They need fruits, vegetables, cascara sagrada and occasionally calomel and salines. To break the hysterical paroxysm there is nothing so effective as a hypodermic of apomorphin. Valerian is one of the best nerve steadiers in this condition, but few physicians care to incur the ill will of good paying patients by giving them this nauseous drug. Sodium bromide is a good and effective nerve calmative, and usually produces sleep when given in ten-grain doses. No habit-forming drugs should be administered to a hysterical woman only under the zealous care of the physician. (The Medical Summary, Sept., 1909.)

INJECTION TREATMENT FOR HÆMORRHOIDS.

Dr. Edwin A. Hamilton, of Columbus, Ohio, states that the injection treatment does not have a wide application as its indiscriminate use is followed by embolus, abscess and other complications,

and relapses are prone to occur except in cases especially adapted to this method. The instruments needed are a cone-shaped anal speculum with one broad fenestrum and a special copper-tipped, long needle of large caliber with an outside barrel, which may be screwed to the needle proper to regulate the depth to which it may be inserted. The solution is 10 per cent. carbolic acid, 90 per cent. oil of sweet almonds. Neither water nor glycerine is used in the solution, as they cause pain. When the sphincter is normal or hypertrophied, the hæmorrhoids are never strained outside of the rectum and treated there, but are allowed to protrude through the fenestrum of the speculum and attended to in their normal location. In cases where the sphincter is dilated and the hæmorrhoids are easily replaced they may be treated outside but under no other conditions. From 4 to 8 drops are injected into a hæmorrhoid, only one injection being made at one treatment. The patient rests in the recumbent posture for several minutes. No application or dressing is applied. The bowels are moved after the second day. Subsequent treatment may be administered at intervals of five days. (Medical Review of Reviews, September 25, 1909.)

IODOFORM AND ICHTHYOL IN PULMONARY TUBERCULOSIS.

Dr. Samuel Floersherm says that after more than four years of study and painstaking observations, he believes he can safely state that in iodoform and ichthyol we have therapeutic agents which are of exceedingly great value in the treatment of pulmonary tuberculosis. The initial dose of iodoform is from one-half to one grain with one or two drops of ichthyol added. These are put into capsules and administered three times a day. The dose of iodoform is increased each week, until tolerance is established. The ichthyol is also increased until the dose reaches four drops three times a day. When the maximum dose of iodoform has been reached, continue it for one or two weeks and reduce it to one-half the dose, and repeat as above stated. With the administration of the drugs the usual strict hygienic, dietetic and climatic measures must be observed. In many cases, after a few weeks of this treatment, the patients feel better, can eat and sleep better, feel stronger and brighter and gain rapidly in weight. Their cough becomes less distressing, the constriction around the chest less annoying, and the respirations deeper and freer. The author reports two cases in which the results were very good. (Medical Council, August, 1909.)

LUMBAR PUNCTURE IN INJURIES OF THE HEAD.

Dr. P. Savy has treated a woman, 43 years of age who fell from a second story window. Sub-conjunctival ecchymosis suggested the possibility of a fracture of the base of the skull, but no operation was attempted, as the patient, rapidly recovered. About thee months later the patient complained of stiffness of the legs with persistent headache and in the course of a few weeks other symptoms indicating a meningeal process developed, and the patient complained of pain along the sciatic nerves. Drop by drop of blackish blood escaped by lumbar puncture and improvement soon followed the second and third lumbar puncture. About 40 cubic centimeters in all of the bloody effusion was evacuated, and the symptoms gradually subsided to complete recovery by the end of a month. The long interval of latency, the possibility of evacuating the blood

at this late date, the rapid improvement and final recovery, all emphasize the importance of lumbar puncture in case of injury to the skull. He thinks that the extravasated blood did not cause the symptoms so much by compression as by the toxic action of the decomposing blood. (Lyon Chirurgical, May 1, 1909.)

MERCURIAL TREATMENT IN SYPHILIS.

Dr. E. C. Hay, Hot Springs, Ark., discusses the merits of each method of its administration, the internal, the inunction, and the injection methods respectively. The ingestion method, or mercury administered by the mouth, is one of the oldest and the one that has been most in favor, but he is opposed to depending on this alone as it is so feeble and slow in its action on the disease, disappointing and discouraging to the patient, irritating to the gums and the digestive tract when given in any adequate dose, and in any case uncertain in its action. He would depend on it only when the patient is free from all manifestations of the disease and it is only desired to keep him slightly under the influence of mercury as a matter of precaution when he is being allowed to rest in the intervals between the more active treatments. When giving mercury by the mouth he prefers a pill containing biniodide of mercury, arsenic and gold; it is non-irritating and has been productive of good results. Another favorite pill is metallic mercury combined with lanolin and purified ox gall, one-half grain each, which produces less gastrointestinal disturbance than any other he has used. The inunction method is also one of the oldest methods. It is not painful and is free from danger and is quick and potent in its action, but it is often objected to by patients because it is apparently dirty and sometimes irritating to the skin. It is, therefore, often left to institutional treatment or treatment at resorts with thermal springs, etc. At Aix la Chapelle the mercury cycle is used; that is, the mercury is rubbed on different portions of the body successively, while at Hot Springs it is confined to the back, hips, and sometimes outer surfaces of the thigh with just as good results, besides being cleaner and pleasanter. The injection methods he thinks has really no advantage over the inunction at least when the soluble preparations are used. The insoluble preparations are the most potent drugs we have when given this way, but it is admitted by the majority of writers that their use is very painful besides being the most dangerous. He believes in the combination of all three methods, and the important points which he wishes to emphasize are given as follows: "When first instituting treatment after infection, either inunctions or injections should be employed, followed by internal medication, instead of treatment with pills first, followed by more heroic methods, as advised by most of the leading writers. The inunctions, from my experience and observation, on an average, are superior to the soluble injections, and more lasting in their effects. The insoluble salts are too intense and profound to be employed in routine, and should be held in reserve for rebellious cases in which rapid and pronounced mercurization is desired. Finally, the long course of treatment I have advised should be pursued in all cases. The six cardinal points in the therapeutics of syphilis are to keep a close observation of the weight, kidneys, bowels, stomach, gums and nervous system; especially the latter, as some patients will never manifest any evidence of mercury in the form of stomatitis, and the first evidence you have is a profound and acute nervous prostration." The pro-

longed course of treatment mentioned covers five years in which the periods of treatment, mainly by inunctions or injections, alternated by periods of rest, are gradually reduced from eight months in the first to four or six weeks in the fifth year. (Journal American Medical Association, Aug. 28, 1909.)

SOY BEAN IN INFANT FEEDING.

Dr. J. Ruhräh, of Baltimore, states that soy bean gruel or milk, either alone or mixed with cow's milk is of value in feeding infants with marasmus and malnutrition, as a substitute for milk in diarrhœa, and in intestinal and stomach disorders and in diabetes mellitus. The gruel has been prepared by soaking the beans over night, stirring to remove the envelop surrounding the bean. Three times the amount of water is added to the beans and they are boiled until a smooth gruel results. This is strained, if necessary. This has the odor and taste of malt, but with the addition of a little salt is well taken, especially after the first bottle or two. The gruel is retained unusually well and seems to be digested easily. The stools are not more frequent than with other foods; they are light brown in color, like those from malted milk. This soy bean gruel has nearly the same food value as milk, and for certain children may need further dilution. About the same size feeding should be used as if milk were being given; 5 per cent. sugar may be added to increase the fuel value. The author feels that if properly used these beans will be a most valuable addition to the dietary of the sick infant.

This soy bean (glycine hispida) is an annual leguminous plant which originally grew in a wild state in Cochin China, in the south of Japan, and in Java. It is now being grown in various sections of the country and can be obtained in the open market like any other legumin. (Archives of Pediatrics, New York, July, 1909.)

Book Reviews

Modern Materia Medica and Therapeutics. By A. A. Stevens, A.M., M.D., Professor of Therapeutics and Clinical Medicine, Woman's Medical College of Pennsylvania; Lecturer on Physical Diagnosis in the University of Pennsylvania; Physician to the Episcopal Hospital, and to St. Agnes' Hospital; Assistant Physician to the Philadelphia General Hospital; Fellow of the College of Physicians of Philadelphia, etc. Fifth Edition, Thoroughly Revised. In Conformity with the Eighth Revision (1905) of the United States Pharmacopœia. Philadelphia and London: W. B. Saunders Company, 1909.

This work is a full and detailed treatise of the various drugs and their application in the treatment of disease. In order to bring the book up to the present advances, new articles, dealing with Scopolamin, Ethylchlorid, Theocin, Veronal and Radium have been added, and considerable new matter has been introduced into the chapter on Radiotherapy.

The arrangement of the subject has been most skillfully done, and the text itself is a model of clear exposition. The classification of the various drugs, enabling the student to learn something of the use and purpose of drugs at the same time as the details of preparation and dosage are being gained, has certainly a great advantage. Especial mention should be made of the part of the book devoted to applied therapeutics, to which is added formulæ, to make more clear the therapeutic application of the drugs under consideration.

The general attractive character and presentation of the remedies is very appealing, and the index at the back of the book is of great value.

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Original Articles

Department in charge of J. MADISON TAYLOR, A.M., M.D.

THE FAECAL ORIGIN OF SOME FORMS OF POSTOPERATIVE TETANUS (ANORECTAL, INTESTINAL, PUERPERAL, GENITAL, AND LOWER PELVIC OPERATIONS) AND ITS PROPHYLAXIS BY PROPER DIETETIC MEASURES.[1]

(A PRELIMINARY COMMUNICATION.)

BY RUDOLPH MATAS, M.D.,
Professor of Surgery in the Medical Department of Tulane University.
NEW ORLEANS, LOUISIANA.

NOTWITHSTANDING the vast increase in our knowledge of the etiology, pathology, and prophylaxis of tetanus since the discovery of the drumstick bacillus of Nicolaier, twenty-six years ago, a certain—not fully determined—number of postoperative deaths from this infection occurs in seemingly clean surgical cases, which has not been satisfactorily accounted for.

While it has been fully and irrefutably demonstrated that the regional liability of the exposed parts of the body to tetanus (feet, hands, legs, forearms, arms, face, neck, etc.) is directly proportional to the degree of surface contact with tetanus-bearing (tetaniferous) matter (earth, manure, dust), the origin and regional distribution of accidental and postoperative tetanus in the concealed parts of the body (protected from surface exposure) has not been sufficiently investigated.

Abundant experience has shown that while the risk of tetanus infection can be absolutely eliminated in all operations *upon sterile tissues in which a*

[1]Read at the meeting of the American Surgical Association, held in Philadelphia, June 3-5, 1909.

rigorous postoperative asepsis can be maintained until healing has occurred, the liability to lockjaw cannot be removed in those regions in which postoperative asepsis cannot be secured.

In order of importance next to the feet and hands and other exposed parts of the extremities, the injuries and surgical operations in those regions of the body which are most exposed to *fæcal* contamination are the most liable to tetanic infection. In this category we will place the anorectal region, perineum, female genito-urinary tract, male genitals, especially scrotum, lower pelvic region, including buttocks, sacrococcygeal region, groins, thigh, knee, upper leg—on their posterior and inner surfaces especially; after operations on the intestines, artificial anus, etc., in all of which postoperative fæcal contact is either constant or unavoidable on account of proximity to the intestine. In considering this topographical distribution we are excluding the direct but unconscious transmission of fæcal matter to distant parts of the body by the soiled fingers of the patient himself, or of his attendants.

The careful attention to the sterilization of instruments and the disinfection of the hands, compelled by the rules of modern surgical, obstetrical, and veterinary practice, has enormously reduced the liability to tetanic infection —even when those parts of the body are involved which are most exposed to fæcal contact—by eliminating the direct inoculation of wounded surfaces with contaminated instruments and hands. However, the occasional postoperative deaths, which occur from time to time in the practice of competent and clean surgeons, clearly point to another source of danger which is not dependent upon defects of technique or contaminated material (*e.g.,* imperfectly sterilized catgut), but to other sources of infection outside of, and apart from, the operative act itself.

This hitherto unrecognized or disregarded factor in the causation of postoperative tetanus—at least in regions liable to fæcal contact—is the direct contamination of the alimentary canal and its contents with living tetanus bacilli and their spores, swallowed in raw, uncooked vegetables, berries, and other fruits which are cultivated in fertilized or manured (*i.e., tetanized*) soil (Robinowitsch, Kolle and Hetsch, Miquel and Cambrier, Kolle and Wassermann, Thalmann, Hecker, *et al.*).

In may be a mere coincidence, but it is a fact that in all the cases of postoperative tetanus occurring after operations in regions liable to fæcal contact which have been investigated by the author (two in his own practice) the patients had eaten copiously of uncooked vegetables within twenty-four and thirty-six hours before the operation. The vegetable menu in these cases coincided with the list of vegetables which have been found in the laboratory to be most frequently contaminated with tetanus germs and spores, viz., celery, lettuce, chicory, water cress, cabbage, radishes, turnips, carrots, tomatoes, and other green vegetables, strawberries, blackberries, and other berries and fruits which are grown in the soil or brought in contact with it, and which are largely consumed *raw* in an unavoidably contaminated state.

The tetanus bacillus and its spores are known to survive the passage through the intestinal canal of the domesticated animals, especially the her-

bivorous horse and cow. The dung of these animals is a perpetual culture medium for the tetanic bacillus, swallowed constantly with the grass of the pasture and the fodder of the stable. Not only are the bacilli ejected alive, but their virulence and activity are probably intensified by their temporary residence in the favorable conditions of the lower intestinal tract (Sormani). This survival of the tetanus germ in a virulent state is fully demonstrated by the experiments of Sormani, Sanchez Toledo, Veillon, Hoffmann, *et al.*, who demonstrated that the diluted excrement of the horse and cow, injected subcutaneously and otherwise, will kill rabbits in from five to six days with all the symptoms of this disease. These and other authors have fully demonstrated that the spores of the drumstick bacillus resist the action of the digestive juices; it has also been demonstrated that the tetanus-laden fæces of the healthy horse and cow are capable of producing fatal tetanus when brought in contact with wounded surfaces in these animals.

In view also of the fact that 5 per cent. of all normal men harbor the tetanus bacillus or its spores in an active state in the intestinal canal, and that the percentage of contaminated individuals is increased to 20 per cent. in hostlers, stablemen, dairymen, drivers, etc., (Pizzini), the possibility of tetanus from fæcal contact must always be kept in mind, especially when operating upon the anorectal region, perineum, and genito-urinary organs of both sexes in unprepared subjects.

The author fully recognizes that the normal defences of the organism against intestinal infection are, in healthy individuals, usually sufficient to protect it, even if the living tetanus bacillus has been freely introduced into the alimentary canal with the ingested food. It is only through the salutary and preservative influence of the protective mechanism, which largely neutralizes the most virulent infections in the alimentary canal, that we can account for the great numbers who escape when operations are performed in the recognized tetanogenic regions. It is evident, however, that even if tetanus infection is a comparatively rare postoperative sequence, it is well worth the observance of the simple precautions required to avoid this deadly accident. Precautionary measures would be more than justified if only one in ten thousand operative cases could be saved from the almost certain death which follows when this form of inoculation occurs after operation.

In accordance with the preceding statements and his own convictions, the author has taught, and insisted in his own practice since his last and second postoperative death from tetanus occurred five years ago (perineoplasty and hæmorrhoids), that no patient should be brought to operation without antitetanic preparation, whenever the operation to be performed involved parts in which fæcal contamination was unavoidable (hæmorrhoids, fissure, fistula, stricture, perineoplasty, vaginal operations, etc.).

This antitetanic preparation is very simple, and consists in (*a*) purgation, three days before the operation; (*b*) the suppression of all *raw,* uncooked food, especially green vegetables, berries, and other fruit (for the same period of time before the operation). In emergencies, when dietetic preparation is impos-

sible, 10 cubic centimeters of tetanus antitoxin are injected subcutaneously at the time of the operation, while the patient is still under the anæsthetic.

In conclusion, it will be noticed that what is asked of the surgeon as a preventive measure against tetanus infection is, in reality, very little; in fact, only a little more than any careful surgeon would prescribe in preparing patients for operations in the abdominal, anorectal, genital, and lower pelvic regions of both sexes. It is true that in the matter of preparation some operators are more careful and exigent than others, but surely the exclusion of all raw food, and especially green vegetables, berries, and fruit for three or at least two days before an operation is no hardship on the patient, when it is customary to prepare such patients by a limited dietary and preliminary purgation. When, for any reason, this simple dietetic and evacuant preparation is impracticable, as in emergency cases, the administration of a prophylactic dose of tetanus antitoxin at the close of the operation, whenever it is feared that fæcal contamination of the wound is unavoidable, will impose no special hardship on the patient. This is particularly true at the present time, since it has become a well-recognized and general practice in progressive institutions to administer a prophylactic dose of tetanus antitoxin to all patients admitted with gunshot, railroad, or other crushed and lacerated wounds of the extremities which are especially liable to lockjaw on account of contamination with mud, dust, manure, or other known sources of tetanus infection.

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ORGANIC NERVOUS DISEASES FROM A PENSION EXAMINER'S STANDPOINT.

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A CONSIDERATION of the subject of diseases of the nervous system, from a pension examiner's standpoint, must necessarily concern itself with the degree of disability produced and the prognosis of the condition. The etiology and the determining factors in the production of the disease, with a clear-cut diagnosis referred to a pathological basis, are essentials to a proper prognosis. We may diagnose nervous disorders as clinical entities, or, on the other hand, as pathological conditions. Paralysis agitans may be paralysis agitans and nothing more, as a clinical diagnosis, or it may, on the other hand, be a symptom group indicative of varying changes in the central nervous system due to arteriosclerosis or sclerotic conditions. If we disregard the clinical diagnosis and study the pathological base for the disease, we can more easily arrive at a more proper idea of the future course of the condition and the degree of disability to be expected. It therefore follows the first essential is a careful, complete history, and the second, a careful and complete examination not alone of the nervous system, but of all the other viscera. In a case of partial paralysis due to a slight thrombotic lesion, the patient may be relatively well and an efficient individual, or on the other hand, in a condition of hopeless invalidism depending on the condition of the circulatory and renal systems. While a careful examination of the heart and circulation with careful studies of the blood-pressure are essential, and while we must know not only the presence of actual disease of the kidney, but also its efficiency even if not diseased, the condition of the lungs, of the liver and of the gastro-intestinal tract, must be taken into consideration.

Taking the history of the case, time and thoroughness as to details, in order to arrive at all the etiological factors, are absolutely essential. And here we must differentiate between causative and determining factors. A man may have had a specific infection with evidence of incipient locomotor ataxia which might, and not infrequently does, exist for years without the production of subjective symptoms. Here the cause of the condition is unquestionably syphilis. A sudden traumatism with minor or marked disturbance of the nervous system may be the determining factor which causes the rapid development of marked ataxia, lancinating pains, ocular symptoms and various visceral disturbances. It requires a careful history and good clinical judgment to determine just how far, and to what degree, the accessory factor has acted in advancing the clinical picture. It is often necessary to observe the patient for some time in order to determine just how far the varying factors have been responsible. In this respect the pension examiner is at a decided disadvantage. Relatively little reliance can be placed on stereotyped statements of prognosis found in the

text-books. Much depends upon the general natural vigor of the body and more particularly of the nervous system. The influence for a good or a bad heredity, the abuse to which the nervous system has been subjected, the degree of wear and tear on the general system dependent upon the occupation and nutritional surroundings of the individual, and the opportunities for rational and scientific treatment, are all factors which must be taken into consideration. The ability of the individual to secure the proper treatment which includes proper food, proper surroundings and individual attention, may alter the prognosis from relatively bad to a fairly good one. In other words, in order to arrive at the proper conclusion, the case more than the disease should be carefully studied.

As to the individual diseases, we may take up the group of syphilitic and parasyphilitic diseases as a whole. The prognosis of an active cerebrospinal syphilis depends upon how soon it is diagnosed and how early it is placed under treatment, and more particularly how the case reacts to treatment. As a general rule it may be stated that when the nervous system is affected early in the course of a syphilitic infection that there is a general tendency for a centralization of the symptoms to one or other portions of the nervous system. While the patient may recover under proper treatment from the first attack of meningeal or vascular trouble referred to the central nervous system, unless careful and prolonged treatment is adhered to, successive and more serious trouble may be expected. If, on the other hand, the case has continued for some time and sclerotic or destructive lesions already exist, little result is to be expected. Tabes dorsalis may be placed as an incurable disease. Its progress may be checked by mixed treatment, some of the symptoms may disappear, but after it is established as a clinical entity, it can be definitely stated that the condition is incurable. This does not mean that the individual may not by proper treatment be restored to purposive activity for a period of years; he nevertheless will show on examination the evidence of the destruction of the posterior roots of the spinal cord. The same statement may be made as to general paralysis of the insane. There is more difficulty in the early diagnosis of this condition. In its early stages it often closely resembles neurasthenia and psychasthenia. The well-developed cases are usually typical. It should be remembered that two conditions give an identical clinical picture, *i.e.*, disseminated cerebral syphilis and chronic lead poisoning. The diagnosis of the latter is dependent upon a careful physical, blood and urinary examination for the usual evidences of lead; and the former by the therapeutic test. The only safe rule is to try out the therapeutic test thoroughly in early cases of general paresis, if we would exclude the rare cases of cerebral syphilis which gives an identical picture. At a recent meeting of the Philadelphia Psychiatric Society, I exhibited two brains from cases of typical, clinical paresis. In one of these the brain showed a condition of active productive meningitis with an extension into the cortex. An active course of antisyphilitic treatment should have delayed the advance in the mental symptoms, if it did not clear them up entirely. When the case, however, is one of true paresis, we may limit the disease to ten years at the outside, with four to five years as an advanced average.

At no time after the development of the disease is the individual to be considered as fit for responsible or purposive work.

Myelitis.—Acute myelitis due to an infection other than syphilis and not secondary to bone disease may cause temporary or permanent paralytic phenomena dependent upon the extent or severity of the pathological process. Minor states of inflammation which might be grouped within the limits of a severe active congestion pathologically may produce a temporary complete paralysis which rapidly disappears with rest, leaving no evidence of injury to the cord. When there is a distinct inflammatory process, there is usually some secondary degeneration of the motor columns with rigidity and a varying loss of power. This may disappear under hygienic mechanical and hydrotherapeutic measures. In the severer form of myelitis, recovery is only partial, and the loss of power may be accentuated by the development of contractures, often necessitating surgical measures (tenotomy, tendon transplantation, etc.), for their relief.

Of acute poliomyelitis which may develop in adult life, the same may be said. Much improvement is to be expected even in the most severe and extensive cases, by persistent use of massage, electricity, mechanical and operative measures. The disability in these cases depends on the extent of involvement. As little as a single muscle may be involved. In such cases, or where a single muscle group is paralyzed, nerve or tendon transplantation may, partially, or completely, remove the disability.

Meningitis.—Cerebral meningitis of whatever cause may disappear with relatively little damage, or on the other hand, may completely disable. Even in epidemic meningitis, apparently full recovery may obtain.

Depending on the intensity of the process and the degree of destruction, all grades of disability may result. When these are purely muscular, much benefit may be obtained by the corrective measures above referred to under myelitis. When, however, the damage is mental, or when the higher special cranial nerves (such as the optic and the auditory) are damaged, the results are usually permanent and do not yield to treatment.

Tumors of the brain are rarely curable even by operation. In a collection of thirty-four tumors in my pathological collection, only one represented the ideal for operative results. All the others were either infiltrating or affected a portion of the brain which precluded operative interference. The prognosis of brain tumors may, therefore, be said to be unfavorable to such restitution of function as to make the individual a self-supporting and purposive individual. I do not mean to imply that much benefit may not be derived from operation, but that the results, as a whole, as to absolute and permanent cure in the great majority of cases is disappointing.

Spinal tumors on account of the early presence of localizing symptoms, offer a more favorable prognosis. Even malignant isolated tumors may be removed with complete and permanent restitution of function.

Cerebral hæmorrhage, thrombosis and embolism, in their prognosis, depend on many factors which must be studied in the individual case. As a rule the paralytic phenomena remaining after three months of treatment, may be taken

as an index of the permanent state. Myotrophic lateral sclerosis, progressive muscular atrophy, bulbar palsy, syringomyelia, multiple sclerosis, primary spastic paraplegia may be classed as incurable and progressively disabling affections.

THE CURATIVE POWERS IN HUMAN MILK.

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Scientific substitute feeding for infants is capable of producing much harm. Judiciously used it has saved unnumbered lives, but too often both physician and mother are lulled into a false sense of security, and breast-feeding is abandoned. In my hospital and dispensary service (extending in one place over thirty years) a day seldom passes but instances occur where mothers of the poorer classes "put their infants on the bottle" for mere convenience. While doubtless this prevailed before the days of easy and exact substitute feeding, it is vastly commoner now, to my personal knowledge. In many cases this change was made under the advice or sanction of a physician. To be sure, immediate effects often seem good enough; the babies are fat and happy; but what of the remote effects on development and immunity, on the endless exigencies of infection and divers disease agencies. Furthermore, no matter how perfect the mere chemical composition of percentage feeding can be made, all clinicians know how difficult it is to provide against the numberless errors which creep in to mar the integrity of the product as a food. So difficult is it to rely on even a specially trained nurse or an intelligent, painstaking mother, that I have personally pled with the members of the Retail Druggists' Association to themselves undertake to furnish bottled food, prepared with all the precision and precaution of which the pharmacist is so capable. They say the risks are too great, also that it can not be made to pay in the long run.

Among the poorer mothers the difficulties of securing ice, guaranteed milk, maintaining cleanliness in containers and such factors, open the door for much disaster. A large proportion of infants suffer or die from such like preventable but perpetually recurring perils. For rich or poor it is a well established maxim that a baby on breast-milk will survive the dangers of infection, either threatened or acquired, far better than when even partial substitution is practiced. Much more grave is the condition of those fed only artificially.

While this axiom is well known, its force is lessened in the consciousness of far too many physicians who have been led to infer that modern substitute feeding is so reliable a measure that they can afford to be lax with nursing mothers. The power of physiologic conviction dies readily in the face of too much talk by "scientific" authorities. In short, it is too often the weakening of mind or conscience in the physician on which rest the problems of infantile life, death or impaired development and health, rather than upon the selfish-

ness, indolence or vanity of the culpable mother. I would, then, offer this formulation:

That physician, or that mother, who, except for cogent reasons, omits to enforce or employ breast-feeding thereby deprives the infant of the most powerful agency for the conservation of life and health. The punishment falls not upon the offender, but upon the helpless victim.

The purpose of this short paper is to point out a few of the reasons for the extreme desirability of conserving in all ways that best of foods and, one may say, of immunizing agencies, breast-milk. I will give rapidly a few salient points bearing on the physiology of milk, borrowing, as all do, but especially from Sajous's researches.[1] The investigations of A. Jacobi, Joseph Winters, Bertillon, Jones, J. Lewis Smith, Holt, Fokker, Louis Fisher, Mayr, based on statistics published in different countries have shown that the mortality of breast-fed infants is conspicuously less than in the bottle-fed. E. G. Holt found, in 1,943 fatal cases due to degenerative disturbances, only three per cent. had been exclusively breast-fed; Jones, in Liverpool, of 718 cases of fatal infant diarrhœa only thirty were exclusively breast-fed. "It is useless," as Chapin remarks, "to attack the problem of artificial infant feeding from the standpoint of chemistry alone." To this, L. T. de M. Sajous adds: "There is something to be thought of in the composition of milk besides mere proteid, fat, carbohydrate, salt, and water. The additional factors, largely overlooked until the last few years, include the passage through the normal maternal milk to the child of special substances, inherent in the species, which assist the offspring not only in the proper treatment of the food-material embodied in the milk, but also in carrying on other bodily functions, including that of protection against infection.

"That milk is capable of conveying antitoxic substances after these have been injected into the mother has been known for a number of years. In 1892 Ehrlich and Brieger demonstrated this fact in their experiments on mice. The offspring of non-immune mice were suckled by other mice which had been immunized against the actions of certain poisons. It was found that the young were thereby rendered immune to the poisons employed, viz., ricin, abrin, and tetanus toxin. This immunity steadily increased during the period of lactation, persisted for some time after, and then gradually disappeared."

Ehrlich, in 1892, performed his classic experiments showing the transmission of antitoxic substances through human milk. Schmid and Pflantz, in 1896, performed similar and interesting experiments on guinea-pigs, with milk from a woman into whom diphtheria antitoxin had been injected. They enunciated the conclusions that (1) antitoxic substances found in the blood of parturient women exist also in their milk; (2) that the quantity of antitoxic substance excreted with the milk is much less than that found in the blood. La Torre, in 1905, made similar observations.

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1 The facts presented are collected in an admirable essay by Louis T. De M. Sajous, son of Charles E. de M. Sajous, appearing in the University of Pennsylvania Medical Bulletin, June, 1909; also from the "Internal Secretions," Vols. I and II, by Sajous, the elder.

Moro found that the bactericidal power of the serum of the blood in breast-fed children was distinctly greater than in those artificially fed.

Some explanation of the comparative immunity of infants under one year to infections is afforded by the observations of Ehrlich, Moro and A. C. Abbott. Sajous says in this connection:—

"As Halban and Landsteiner have shown, the bactericidal power of the blood of newborn infants is relatively deficient, and it seems not unlikely that this deficiency should be made up by the transmission of protective bodies from the mother. Under these conditions the antitoxic status, if I may so express it, of the infant's blood should correspond more or less closely with that of the maternal blood, this implying, as a consequence, that the infant should react to the various morbid influences to which it is exposed in a manner more or less similar to the mother herself. In support of this proposition it may be urged that the infections to which the infants below one year seem less susceptible than children past that age are also diseases which occur infrequently among adults—a fact which suggests a similar cause for this infrequency during these two periods of life. This would involve the conclusion that breast-fed infants acquire these diseases less often than the artificially fed. That such is probably the case is suggested by Fischer's statement that he has 'rarely met with infectious diseases in healthy breast-fed infants,' and Mayr's observation that of ten nurslings exposed to measles, only one contracted the disease."

Finally the subject of the bactericidal properties of the milk itself, on which some convictions were held, but much uncertainty prevailed till lately. It has now been carefully studied in connection with the problem of the effects of heat on the composition of milk during sterilization and pasteurization. I quote in full from L. T. de M. Sajous's able paper to the end:—

"Human breast milk is often put down as sterile; this is not strictly the case, though its bacterial content is very usually made up of organisms of low virulence, as the staphylococcus albus and, less commonly, aureus. Cow's milk, on the other hand, is not only not sterile when it leaves the animal, containing as it does frequently streptococci and tubercle bacilli, but is subsequently given numerous opportunities for further contamination before it reaches the artificially fed infant. G. W. Goler found by careful tabulations of the deaths in early childhood in Rochester, N. Y., that 'the infantile death rate bore a close relation to the average number of bacteria per cubic centimeter found in the municipal milk supply.' This brings out clearly the importance of the bacteriological study of milk, and the need of precautions to minimize the effects of any pathogenic bacteria it may contain. It is of no less significance in connection with breast-feeding, since milk transferred directly from the breast to the infant's digestive tract has naturally the least possible opportunity to become infected from the exterior. Provided the mother's breasts be not diseased, human milk is therefore a safe food relatively so far as the bacterial content is concerned, while, conversely, the use of cow's milk affords more or less time for the multiplication of bacteria before it is consumed.

"Fokker, a number of years ago, reached the conclusion that milk possessed

an inhibitory influence on bacteria similar to that of the blood serum. He inoculated specimens of raw milk and of milk sterilized by heat with lactic-acid-forming organisms, and observed that the formation of acid with consequent coagulation of the milk took place more rapidly in the sterilized milk than in the raw milk. He therefore believed that the latter possessed an inhibitory power which the sterile milk had lost through being heated. His results were contradicted by Basenau, but on insufficient grounds, and they have been supported by later investigations. Experiments were made to bring out the behavior of the organisms of typhoid fever and cholera when introduced into cow's milk, but the results were so contradictory that they are of no value for our present purpose. In 1901 Hunsiker published conclusions based on an extensive series of observations on the bactericidal properties of cow's milk. He found that fresh milk usually had germicidal power, but that it varied markedly in degree in the milk obtained from different animals, and even sometimes with different milkings from the same animals. He also noted that the germicidal influence was strongest at 70° F., being weaker but of greater duration at temperatures below this; that it lasted on the average from three to six hours at 70° F., at most twelve hours; and that an exposure of forty minutes at 149° F. destroyed it completely.

"Hunsiker's findings were confirmed and amplified in 1908 by Evans and Cope. They obtained raw sterile milk directly from the cow, treated portions of it by heating to various grades of temperature, and other portions by freezing, inoculated the specimens with various organisms after bringing them all back to room temperature, and then observed the rapidity of multiplication of these organisms by making counts at frequent intervals. Their results are of great interest. At the end of four hours the lactic acid bacillus showed an increase of 6 per cent. in the raw sterile milk, 55 per cent. in the frozen milk, 250 per cent. in the sterile milk heated at 55° C., 1000 per cent. in the milk heated at 68° C., 3500 per cent. in the milk heated to the boiling point, and 2500 per cent. in a bouillon control. The inhibitory activity thus shown to exist in raw milk they found to last only four to eight hours, after which the bacteria in the different specimens proliferated with approximately equal rapidity. At the end of twenty-four hours the counts made in the different specimens varied so little that it might almost seem as if they had all been subjected to the same treatment from the beginning. Among other organisms upon which the antibacterial effects of milk were tested by these investigators were streptococcus pyogenes, the micrococcus aureus or staphylococcus, and the bacillus coli communis. The results obtained were essentially the same as with the lactic acid organism, except in that an actual bactericidal effect was produced in the raw sterile milk, the number of bacteria showing at the end of four hours a decrease instead of a limited increase. The reduction in the case of the streptococci amounted to 3.5 per cent., in the staphylococci 20 per cent., and in the colon bacilli 40 per cent. At the eighth hour, the streptococci were further slightly reduced, but after this underwent rapid increase; the staphylococci had already begun to increase at the eighth hour, while the colon bacilli were about 100 times as numerous at this time as they had been at the fourth

hour. In the specimens of milk heated at certain temperatures before being inoculated no reduction in the number of bacteria was produced, except in the case of the streptococci in milk previously heated at 55° C. In the boiled milk the organisms always underwent rapid proliferation from the start.

"These experiments show that there exists in raw milk a well-marked bactericidal, or at least inhibitory, power, which, however, is of short duration. The latter fact would seem to be of some importance in connection with the artificial feeding of infants. Few infants are enabled to take their cow's milk within eight hours or even twelve hours after it has left the animal. They receive it, then, after its inhibitory influence on bacteria has largely disappeared. Whatever microörganisms may have been acquired by the milk during its journey from the cow to the infant have begun to multiply at once, and the longer the period elapsed, the greater the danger becomes. The infant then has to depend exclusively upon its own defensive activities for checking bacterial proliferation, *i.e.*, upon the HCl and pepsin of its gastric juice. Moreover, Netter states that the proportions of both total and combined hydrochloric acid are less in the gastric contents of children below two years of age than in adults. If the quality of the infant's gastric juice be impaired for any reason, as in the case of inherent weakness or exposure to unhealthy surroundings, or under the influence of hot weather, it is directly exposed to bacterial mischief, whereas if the milk still possessed antibacterial power when ingested, this additional protective influence would be present during the period of digestion, and doubtless in many cases be a deciding factor in the preservation of comparative health as against disease.

"The importance to the infant of keeping under control the organisms in its gastro-intestinal tract need not be emphasized when we recall the great prevalence and fatality of disorders of this tract, especially in the summer months. Babies fed on cow's milk kept for a number of hours and subjected to a temperature favorable to microörganismal growth are very prone to develop one of the forms of acute or subacute infectious gastro-enteritis (which may be used as a general term for several more or less diversely classified diseases, as summer diarrhœa, cholera infantum, etc.). In the more acute affections of this type, symptoms directly due to the toxic products generated by bacteria are seen. The organisms found have been various and their relationship to the different disease conditions have not as yet been fully worked out, but it is known that the bacillus of Shiga is often present, also a variety of the colon bacillus which has acquired virulence, and not infrequently the streptococcus. As Ruhräh states, 'nearly all the cases and nearly all the deaths are in bottle-fed babies.'

"Breast-fed infants receive milk that is comparatively free of bacteria and with whatever bactericidal power it may possess undiminished by lapse of time. Cozzolino found that in human milk the growth of the colon bacillus was limited during fourteen to forty-eight hours, whereas in cow's, goat's, and ass's milk abundant growth occurred. If these experiments are valid, we have further evidence in favor of the protective activity of maternal milk.

"The conclusions suggested by these facts are as follows:—

"1. The prevailing custom of considering only the nutritional values of

milk and other forms of food used in the artificial feeding of infants is partly responsible for the great mortality that prevails among them, especially during the first year.

"2. The protection of the infant against infection depending in no small degree upon bactericidal and antitoxic substances physiologically supplied to it in the maternal milk, the protective properties of any artificial food should receive attention as well as its nutritional values.

"3. All phases of the problem indicate that, of the various modes of feeding, direct maternal nursing affords the greatest protection to the infant; it follows, therefore, that

"4. We should do all in our power to promote the abandonment of artificial feeding and thus reduce greatly the mortality among infants."

RELATIONS OF RECTAL DISEASE TO GENERAL HEALTH.

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The modern aspect of medicine, brought about by the relation of micro-organisms to the human body, taken as a soil, has awakened the highest interest in the functions of the rectum, and the necessity of keeping these functions within strict physiological limits. That the body should maintain itself in a fair state of health, not only should the various glands and blood-making organs have their physiological integrity but the serum should retain its opsonin-producing power and the polynuclear leucocytes should abound, to digest easily the invading microörganism weakened by the opsonin. That this auto-protective system should remain unimpaired it is necessary that the sympathetic nervous system as well as the cerebro-spinal system continue in a normal state.

My object is to briefly show the intimate connection of the sigmoid and rectum, with the sympathetic and cerebro-spinal nervous system. Under various rectal disorders the nervous system becomes thoroughly demoralized, predisposing the patient to many reflex troubles. Second, I will demonstrate the great absorbing power of the rectum, for gases and fluids and thereby show the toxic influence of constipation upon the general system, in weakening the autoprotective powers of the economy, the opsonins and phagocytes.

The cerebro-spinal system gives the muscles of the rectum branches from the sacral plexus, while the superficial perineal, a branch of the pudic, supplies the levator ani and the skin in front of the anus. The inferior hæmorrhoidal, sometimes existing independently from the sacral plexus, supplies the lower end of the rectum and anus. The pudic is controlled by the same part of the cord as the sciatic. Hence irritation from a fissure or ulcer located within the anus may be transferred down the limbs to some distant parts. The intimate relation of this nerve to the genito-urinary organs, explains the frequency with which disorders of urination are associated with rectal affections. It is through

the sympathetic system, however, that a more profound impression is produced upon the general economy, from the rectum. The sympathetic nerve in this region comes from the mesenteric and hypogastric plexuses. It also receives branches from the lumbar and sacral plexuses. From this intimate connection of the rectum with the sympathetic, it follows that any constant irritation in this region is betrayed to the sympathetic system as a symptom which I have called the pain of the sympathetic; that is, a constant degree of low shock commonly called a condition of general depression. During this state, in reality a minor condition of shock, all the functions of the body are lowered, and the patient's resistance to disease lowered. This condition, obscure in itself, has been sometimes diagnosed as neurasthenia, a name often too handy to cover the symptoms resulting from an overlooked constant insult to the sympathetic system.

Hæmorrhoids, anal fissure, fistula in ano, prolapse of rectum therefore undermine the system by the actual sensation of pain through the cerebro-spinal system and as markedly by the depression or minor condition of constant shock through the sympathetic, resulting in anæmia, hence a diminished polynuclear leucocytosis; that is diminished auto-protection of the body against infections, and diminished function of the glands for internal secretions. I have seen many patients who had become neurasthenics, and were cured when relieved of internal hæmorrhoids. I have especially gathered observations of four cases of ulcer of the stomach, in whom hæmorrhoids had existed for five, eight and nine years, who persistently neglected the treatment of the hæmorrhoids and whose general debility was followed by chronic dyspepsia and this by ulcer of the stomach. In one instance the patient still refused operation for the ulcer; it perforated and death followed. In the other three cases a gastro-enterostomy was performed and the hæmorrhoids were removed.

I have also found hæmorrhoids associated with various forms of malignant growths. Of course we know that any part of the body if constantly irritated is prone to degenerate into a malignant condition, the constant irritation predisposing the spot to cancerous infection. Another factor comes from the constant depression of the sympathetic, which we know is a predisposing cause for cancer elsewhere in the body.

A tubercular fistula in ano, aside from its local significance is a constant source of possible tubercular infection to the rest of the economy, and should, therefore be promptly removed.

But by far the most common affection of the rectum and that which directly and indirectly results in the most harm to the economy is constipation. This condition so universally spread, has never received the attention it deserves, and the future will reveal more and more its baneful effects on the human race. Mere talk, advice and warning on the subject does not suffice, we should convince ourselves on this matter, and convince our patients by the following plain facts: The rectum is a reservoir for fæces—true, but nature has endowed it with a quality as dangerous as it may be useful—that is, absorption.

The absorbent vessels of the rectum are much more numerous than are generally supposed. The lymphatics run backward between the two layers of

the meso-rectum, in which there are four or five glands, through the sacral to the lumbar glands. The veins are the superior, middle and inferior hæmorrhoidal. The superior hæmorrhoidal vein returns the blood to the portal vein and liver, while the middle and inferior hæmorrhoidal vein return the blood to the internal iliac vein. Hence the passage through the liver and through the general circulation of fluids and gases from the rectum. This absorbent property has been recognized and utilized in therapeutics for rectal feeding. It is wonderful to contemplate how long and how efficiently this can be done. Some three years ago, I had a patient who had an ulcer of the stomach with repeated hæmatemesis, and marked cardio-vascular disease. An operation on the stomach was impossible, he was treated by rectal feeding alone during eight weeks, without loss of weight. It is well known to-day that the Murphy gradual instillation of normal salt solution in the rectum is a most valuable adjunct to our surgical therapeutics in peritonitis. As many as eight quarts of normal salt solution have been absorbed in twenty-four hours without discomfort to the patient. This fluid passes into the lymphatics and veins. If the abdominal cavity be drained, a large amount of this fluid modified by the serum of the blood is poured into the dressings.

Ether is freely administered by the rectum with resulting anæsthesia. Oxygen is absorbed by the rectum in the treatment of asphyxia.

These statements give us an idea of how absorbent the rectum is, and therefore how easily can be absorbed into the system the deleterious fluids and gases of fæcal matter which are allowed to stagnate in the rectum. What clinician can tell us to-day the number of ailments to which the body is predisposed by constipation. The toxic fluid and gases are certainly absorbed in direct proportion to the hardness of the fæcal matter of constipation. Their effect upon the internal secretions, upon the opsonins and upon the phagocytes has but lately been studied, and the full damage produced by them is not yet known. Some, however, are the following:—

Auto-intoxication, as manifested by a furred tongue, bad taste, foul breath, nausea, thirst, sallow complexion, certain skin affections (acne, urticaria, etc.), anæmia, weak pulse, lassitude, anorexia, insomnia, loss of memory, inability to concentrate the mind, infantile convulsions, and other phenomena. Surgeons have learned from experience that when a patient has a sudden rise of temperature which cannot be accounted for by infection, the best thing to do is to administer a cathartic or high enema, and thoroughly empty the bowel, a procedure which is followed by a prompt reduction of the temperature, proving that local absorption was the cause of the trouble.

Headaches of various degrees of intensity; among women sick headaches, which may occur periodically and are not relieved until free catharsis is resorted to. Neuralgia is a frequent result of constipation. Loomis called it "a cry of the nerves for better blood." It may occur in any part of the body.

A constant auto-intoxication leads to imperfect nutrition of the cellular elements of the body. The first to suffer are those of the lowest order, the fibro-elastic tissues which enter into the composition of the various fasciæ and suspensory ligaments of the viscera. As these cellular elements weaken under

the influence of auto-intoxication, they no longer possess sufficient power to sustain the various viscera and ptosis occurs, gastroptosis, enteroptosis, coloptosis —all of which aggravate the condition by increasing the sympathetic shock or depression of the system, by decreasing the physiological efficiency of these various organs by diminishing the peristaltic action of the colon, allowing it to assume a V-like, or hammock-like, or festooned position, wherein fæcal matter accumulates, leading to further intoxication. Thus, we see that the initial habits of constipation which may at first result merely from removable causes, leads to a genuine vicious circle: that is, intoxication, coloptosis, fæcal retention or impaction, which in its turn accentuates the auto-intoxication. I have at present a case in point. A wealthy merchant of Philadelphia, sixty-five years of age, had suffered for many years with symptoms of neurasthenia, headaches, foul breath, pains in back, in abdomen. No appetite, vomiting. He had been treated by several prominent clinicians of Philadelphia, who, having recognized his habits of constipation, had prescribed purgatives, etc., which would relieve him awhile, but he soon fell into his former condition. Fearing that he was developing a malignant trouble in the abdomen, requiring an operation, he applied to me for help. Clinical and X-ray examination failed to show malignant disease. Gastroptosis, however, was diagnosed and also a festooned transverse colon. Purgatives would cause an overflow from the transverse colon into the descending colon or rectum, but would not empty the transverse colon, which remained full after the purgative as well as before it. It then occurred to me that my patient suffered with chronic auto-intoxication in spite of the course of treatment to which he had been submitted during the several years past. To relieve this condition I practiced on him the operation of appendicostomy, whereby a fistula of the caliber of the appendix was made in the right inguinal region. Through this fistula he introduces an ordinary male catheter and washes out his colon two or three times a week, removing thereby all possibility of absorption of putrefactive fluids and gases from the dependent colon. A snugly fitting abdominal supporter relieves the symptoms of enteroptosis. After three months treatment he has apparently rejuvenated many years and enjoys excellent health.

My firm conviction is that many obscure troubles can be traced to an etiology more or less similar to the case just related and more attention should be directed to constipation as an immediate or remote cause.

It was not my intention to give an exhaustive study of any one phase of the many diseases of the rectum. I wished in a very concise way to point out some of the remote consequences of rectal affections based upon anatomical physiological and pathological relations of this organ to the general economy—an importance not sufficiently given to the subject; I simply meant to emphasize the necessity of giving the rectum and its functions the real claim it has in keeping the body in its physiological equilibrium of health, preventing, thereby many subsequent complications, which in their turn may be incurable.

CATARACT.

(Two Demonstration Lectures.)

By CHARLES A. OLIVER, A.M., M.D.,

PHILADELPHIA.

(SECOND LECTURE)*

TREATMENT.—The removal of cataract can be secured only by operation. The fact that a few undoubted instances of spontaneous disappearance of the condition have been observed, does not militate against the force of this statement. Reported instances of its cure by means of drugs, or by massage are misleading, and usually emanate from persons or institutions that are devoted to the purpose of mere monetary gain. It is probable that the temporary visual improvement which is, at times, obtained by such patients, is due to the instillation of a mydriatic, for, if the opacity be central, dilation of the pupil may be rendered sufficiently large to remove the iris from before the clear periphery of the lens, thus permitting vision through the unobstructed portion of the lens. Unfortunately, however, the improvement, which, at best, is but temporary, lasts only during the time of the effects of the drug.

The development of cataract may be retarded by careful use of the eyes, by repeated correction of any existing anomaly of refraction, and by constant care of the patient's general health. In this connection, it is interesting to note that the present average age of operated-upon cases in this portion of the world (Philadelphia), has gradually lengthened nearly a decade in the past half century.

OPERATIONS.—At present, there are two operative methods of treating cataract: one by absorption and the other by extraction. The first is applicable to soft cataracts only, and is consequently limited to those cases that are found in young subjects. It has for its object the bringing of the aqueous humor into contact with the lens-fibers by means of an artificial opening made in the anterior capsule of the lens. This is accomplished by entering a needle tip, especially prepared for the purpose, through one of the peripheral quadrants of the cornea, and incising those portions of the anterior capsule of the lens that are situated opposite the pupillary area.

The pupil should have been primarily dilated as much as possible with some efficient mydriatic. Care should be taken, particularly in very young subjects, that the capsular incisions are not made too extensively, and that they do not penetrate too deeply into the lens-structure, in order that the lens-mass may not be disturbed too greatly. For developmental reasons, it is best to wait until the subject is about a year old before any operative procedures are attempted.

General anæsthesia is not necessary. The instillation of a few drops of a

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two-per-cent.-strength solution of hydrochlorate of cocain into the conjunctival *cul-de-sac,* is sufficient to render the operation painless. The patient should be placed in a recumbent position and the eyelids should be separated by a speculum or by an elevator and the fingers of an assistant. After the procedure, a few drops of a one-per-cent.-strength solution of sulphate of atropin should be, as a rule, instilled into the conjunctival *cul-de-sac,* and iced compresses applied until the eye becomes free from any signs and symptoms of operative irritation.

If no complications arise and there be sufficient reason, the operation can be repeated as soon as the absorption of the loosened cataractous masses seems to have been accomplished as much as possible, and the bulk of the remaining lens-mass itself has become stationary. The incisions in the second and in any subsequent operations, may be made more freely, as the danger of swelling of the lens-fibers, with the possibility of the production of so-called secondary glaucoma, is lessened; this, in measure, being due to the diminished volume of the lens-material and the lower grade of reaction. If there is a dense central mass, it had better be removed separately through a peripheral incision while the subject is under the influence of a general anæsthetic. If the lens substance escapes as a milky fluid when the capsule is cut, it should be immediately evacuated through a small peripherally placed corneal incision. In uncomplicated cases, the absorption of the cataractous masses is generally accomplished in eight to ten weeks' time. In some instances, the lens material is so hard that it can be only removed safely and satisfactorily in its entirety, in its capsule, with a hook, a loop, or a spoon.

The principal complications of the procedure are iritis, and, as just noted —secondary glaucoma. The first is supposed to be caused either by pressure or "chemical irritation" exerted by the lens-matter on the iris. As a rule, it may be prevented by keeping the pupil well dilated with some powerful iridoplegic or cycloplegic or combination of cycloplegics. If the second form of complication appears, as much of the lens-matter as may be proper at the time, should be immediately removed by extraction through a linear incision, and the softened lens-masses carefully and gently coaxed out along the groove of a Daviel spoon or a grooved spud. Care should be taken to avoid ectogenous infection from the related and adjacent mucous membranes.

In traumatic cataract, the patient should be placed in bed as early as possible. Iced compresses should be applied either constantly or intermittently to the eye in order to reduce inflammatory reaction, and atropin should be instilled at regular intervals, so as to prevent the occurrence of iridic inflammation. Ordinarily, under such a plan of treatment, the lens-substance will be gradually absorbed without any complicating disturbances. The danger of secondary glaucoma with its accompanying signs and symptoms, should never be lost sight of, and intra-ocular tension should be repeatedly tested.

In operating upon shrunken cataracts or upon membranous opacities, it is not so essential to provoke absorption of the remaining cataractous material as it is to obtain a clear space in the toughened and opaque capsule or capsular and lenticular remains through which vision can be gotten. The operation

is ordinarily performed by means of two needle tips that are passed rather obliquely through the cornea, one near to the nasal side of the cornea and the other as close to the temporal border as judiciously possible. This done, both are pushed backward into the chosen portion of the mass and the points of the instruments separated from one another in such manner that no traction is exerted upon the iris and the ciliary body, thus producing a clear hole in the membrane. If this be impossible, various modifications of procedure known as iridotomy, iridectomy, capsulotomy and capsulectomy, either separately or in combination, may be usefully employed in different ways for the same purpose.

Simple linear extraction is applicable to the removal of both the soft and the membranous varieties of opacity. It is preferred by many operators to discission, and may be employed in any case in which the lens-substance is sufficiently soft to flow through a small peripherally placed wound.

The operation is performed as follows: After a speculum has been inserted, or the eyelids separated by an assistant, the globe is grasped by a fixation-forceps, and the point of a keratome or the tip of a von Graefe knife is entered into the anterior chamber through the cornea, usually about two or three millimeters' distance from the limbus. If the former instrument is used, its tip is passed directly through the corneal membrane, but, as soon as the point enters the anterior chamber, the cutting-blade of the instrument is laid upon a plane which is parallel to that of the iris. It is then pushed forwards until the corneal wound has obtained a length of several millimeters. It is then slowly withdrawn, in order to prevent the aqueous humor from coming away too quickly, with the possibility of a prolapse of the iris. If a von Graefe knife is used, the movements given to the instrument must be carefully performed, in order to avoid wounding the iris-tissue. The point of a cystitome is then passed into the anterior chamber through the same corneal wound, care being taken not to injure the iris. Free incision into the anterior capsule of the lens is then made with it. After the incisions have been accomplished, the cystitome is withdrawn, and the loosened lens-matter is evacuated by means of a Daviel spoon or a grooved spud. If necessary, the operation may be done with the addition of an iridectomy. In this event, the corneal incision is made nearer the limbus of the cornea and should be made somewhat longer. After the withdrawal of the knife, the tips of an iris-forceps are introduced into the anterior chamber and a fold of iris directly over the sphincter of the pupil is grasped and gently drawn through the wound. The extended portion of the iris is then cleanly snipped off with a pair of fine scissors. Cystotomy and extraction of the lens-massings then follow, as just detailed.

As it frequently happens that lens-matter is left behind, a number of operators practice its removal by suction-syringes of special construction. The procedures, however, have never obtained general favor.

The operation for the removal of a hard cataract consists essentially of three steps: the making of a corneal incision of sufficient size to permit of the passage of the lens; the performance of an incision, or a series of them, into the anterior capsule of the lens (cystotomy) in order to allow the egress of the lens-matter through it; and the delivery of the lens-substance from the eye-

ball itself. Before the actual operation is performed, certain preliminary details should be carefully attended to. Care should be taken that the conjunctival membrane and the lacrymal passages are free from the presence of pyogenic or other harmful bacteria. A general warm bath should be given to the patient the night before the procedure. His head is to be cleansed with castile soap and water. The bowels should be relieved by a gentle laxative, in order that they may not be disturbed for the first few days after the operation.

The instruments, with the exception of the knives, which should be immersed in alcohol for at least twenty minutes prior to their use, should be boiled. After their cleansing has been completed, they should be kept in a tray of alcohol, during the entire operation, being dipped for a few moments in a tray of sterile water just as they are being picked up for use. Care must be exercised not to use any differentiating anilin dye for either the immersion or the cleansing fluids when they contain bichlorid of mercury, as the staining materials may injure the epithelium and the deeper structures of the cornea.

The patient having been properly prepared and the field of operation having been cleansed and excluded from external contamination for a couple of hours previously by a few turns of a roller bandage, the eyebrows, eyelashes, eyelids, and adjacent parts should be thoroughly washed with a saturated solution of boric acid. The lids, whenever possible, should be gently everted and the upper and the lower *cul-de-sacs* flushed with the same character of solution. Several drops of a two-per-cent.-strength solution of hydrochlorate of cocain are then introduced into the conjunctival sacs at five-minute intervals, for about fifteen minutes before the operation, care being taken that the eyelids are kept closed and that a clean towel is thrown over the field of operation. If possible, the patient should lie flat on his back in the bed that he is to occupy. If circumstances do not permit of this, he should be placed upon some form of operating chair or table. The source of light should be situated so that there shall be a field of uniform illumination upon the exact points to be operated upon. If the surgeon be ambidextrous, he may place himself in front of the patient or behind him in accordance with comfort and existing circumstances. A trained assistant should be present and assume such a position that he may be able to hand the instruments to the surgeon or receive them from him with such skill and rapidity that the operator may be able to keep his vision fixed upon the field of operation during the successive stages. Prior to any procedure, it is well for the surgeon to speak kindly and quietly to the patient for a few moments to gain his confidence, and at the same time inform him of certain movements of the eyes that may be necessary during the operation. The patient should be cautioned against holding his breath and straining, and should be told to resist all desire to close his eyes forcibly. By these few injunctions, quietly and authoritatively given, the most intractable subjects may be rendered obedient; the soothing words thus given, often bearing fruit to the surgeon a hundred-fold.

All these minor, but essential, preliminaries being satisfied, the eyelids are to be separated by a wire lid-elevator held in the hands of a skilled assistant, who is capable, if necessary, to momentarily remove the instrument without

any damage to the organ. The patient is asked to look down. The globe is firmly and gently held in any desired position without any pressure upon it, by lightly taking a fold of bulbar conjunctiva about two or three millimeters' distance from the corneal limbus within the grasp of a fixation-forceps held with one hand, while with the other the corneal section is made. The knife most generally employed is the one which was introduced by von Graefe. It consists of a long, straight, narrow blade converging at its far extremity into a sharp point. Unless contraindicated, the primary puncture should be made just within the margin of the clear cornea at the outer extremity of a horizontal line, which, as a rule, would pass three millimeters below the summit of the membrane. The cutting edge of the knife should be situated upward and its point is to be directed towards the center of the cornea. After the tip of the knife has been made to enter the anterior chamber, it should be carried directly across the chamber and re-entered into the opposite side of the corneal tissue at any point desired. The section is then completed by an upward movement of the knife so regulated that the corneal incision is kept true and smooth throughout its entire extent. At this stage, the elevator, in uncomplicated cases, is removed, and not used again. The first stage of the operation being completed, the surgeon next addresses himself to the performance of the second stage, or that of capsulotomy, or so-called cystotomy. Directing the patient to look down and without any fixation-instrument in position, if possible, he introduces a cystitome, with the heel of the cutting point first, between the lips of the corneal wound, and inserts the point of the instrument into the anterior capsule, without dislocating the lens, in such a manner as to be able to make a series of as free incisions as he may believe desirable and in such positions as he may consider the best in each individual case. These having been obtained, the cystitome is withdrawn in such a way that the iris is not wounded during the withdrawal. The avenue of escape for the lens having been made, it remains to practically complete the operation by the performance of the third stage, or that of the delivery of the lens. The surgeon should, with the ball of the finger-tip of one hand placed upon the sclera just below the lower edge of the cornea, and a spatula held in the other hand, and placed upon the sclera just above the corneal section, make a series of delicate, yet steady, upward and forward pressures and counter-pressures until just one-half of the lens has engaged in the corneal wound, when, by a series of dextrous and slightly tilting and upward motions from side to side, the lens will emerge without any accident, and the corneal flap will fall smoothly into place. Should the pupil not be round, and should any lens debris be seen, the eyelids are to be closed and a light gentle rotary motion is to be made upon the globe through the upper eyelid by the fingers. If there be any cortex remnants, the stump of the flap is to be slightly depressed and the masses gently, though as completely as possible, washed out of the anterior and the posterior chambers by free irrigation from varying positions with warm sterile water or boric-acid solution carefully projected from a bulb syringe without the introduction of any instrument into the chambers.

After the lens has been delivered, and everything, such as blood-clots and

remaining lens material, which might prevent the proper union of the lips of the corneal wound, have been removed, the conjunctival *cul-de-sac* is flushed clean with a warmed solution of boric acid, and the pupil and corneal flap are seen to be in proper positions. At times, it may be well to instil a drop or two of a neutral solution of sulphate of atropin or scopolamin. The eyelids of both eyes are then gently closed and held together by a couple of narrow strips of isinglass plaster. No pressure should be made upon the eyeballs.

A few carefully adjusted and smoothly applied turns of gauze bandage over squares of sterilized gauze properly covered by pledgets of absorbent cotton should be made without disturbing the patient. Strict injunction to remain quiet for at least twenty-four hours' time, should be given; any necessary desires being properly cared for by competent attendants.

If no pain be complained of, the dressings should be allowed to remain for a period of twenty-four hours, at the end of which time they can be removed, the eye inspected, and the conjunctival *cul-de-sac* gently flushed with a warmed solution of boric acid. If all has gone well, it will be found that the anterior chamber has re-established itself and that the eye is quiet. If there be any injection, if the pupil is small, or if any signs of inflammatory reaction be present, a drop or two of sulphate of atropin, or, better, hydrochlorate of scopolamin should be instilled. At the end of forty-eight hours' time, the dressing over the sound eye may be removed, but that on the operated eye, which can be made lighter, should be allowed to remain for another day, when plain smoked glasses, or, if unobtainable, a suitable shade, can be worn.

To prevent tendency to prolapse of the iris and to favor smooth healing of the corneal incision, it is essential that the patient should rest absolutely quiet in bed for the first forty-eight hours. If he be old and feeble, more latitude can be given to his movements, which must be accomplished by the aid of careful attendants. At the end of the second day, a bed-rest may be employed, and on the third day, if the healing has been uncomplicated (which under the circumstances will be so almost without exception) the patient may be allowed to sit up. For the first twenty-four to forty-eight hours, the diet, which is to be regularly given, should be liquid and semi-solid. On the third day, the bowels may be opened by a gentle laxative. After this, liberal nourishment is to be ordered.

The operation which has just been described, is what is known as simple extraction, or extraction without iridectomy, and should be the one chosen in all cases in which there are no contraindications.

Many operators, however, still make use of an iridectomy before they expel the lens, justly claiming for this method that it enables them to get rid of any remaining cortical matter much more readily. They also state that it prevents prolapse of the iris and that the lens may be extruded through a smaller wound. The sole difference in the procedure consists in removing a wedge-shaped piece of iris tissue after the corneal section has been made. To do this, the tips of a pair of iris forceps are introduced through the corneal section, so as to reach the sphincter pupillæ. The inclosed iris tissue is gently grasped at the pupillary border and steadily withdrawn through the center of the wound. The extruded

portion is excised by a single clip made with an iris scissors. The free edges of the coloboma thus made, are smoothly set into position by an applicator or a flat spatula.

Those who prefer extraction without iridectomy, urge that the advantages of a round, mobile pupil make it the operation of choice. The contraindications are: an unripe cataract, increased intra-ocular tension, a small rigid pupil, and an intractable patient.

Despite the most careful precautions, prolapse of the iris occurs in a few cases of simple extraction, usually appearing during the first twenty-four or forty-eight hours. If it be small, it may be let alone. If it be considerable, and the lips of the wound remain ununited, the line of corneal incision may be opened and the prolapsed portion of the iris excised with an iridectomy scissors. Should the prolapse occur after the corneal wound has united, it is best either to wait until about the tenth day, when a formal iridectomy can be made, or, if not productive of any irritation, and the pupil is not much distorted, the prolapsed portion can remain undisturbed; cicatrization and flattening subsequently taking place.

In certain cases in which complications are feared, or when it is advisable to hasten the maturity of the cataract, an iridectomy known as "preliminary iridectomy," can be performed some time before the extraction of the lens is made. If it is desired to ripen the lens after the iridectomy has been performed, the anterior capsule of the lens may be triturated with a spatula either directly applied to it or indirectly through the cornea. Rapid swelling and opacification of the lens-fibers are said to follow these procedures, and the extraction in many cases is made possible in several weeks' time after the operation. The lens-substance, however, in these cases, seem to have obtained an undue degree of friability, which may be detrimental to its complete removal. In this class of cases it is much better to remove the lens in its capsule.

Regular removal of the lens in its capsule, as is practiced in some countries, is a preferred and invaluable plan of procedure in the hands of expert operators.

Many surgeons assert that simple extraction with the section made as much as possible in the avascular cornea gives the best results in "black cataract."

Many of the accidents occurring during cataract extraction are the results of want of skill. Loss of vitreous humor can be often prevented by the employment of fine sutures placed in the cornea. Should the sclera collapse during a cataract extraction procedure, the lens may be safely removed within its capsule, by the use of a wire loop. Propulsive hæmorrhage is, fortunately, a rare complication. It is almost always ruinous to the eye. It is best met by local and general methods that are adapted to each individual case. In some instances, it happens that the patient's condition is such that a successful result can scarcely be expected: Deafness, loss of self-control, and great stupidity are all harmful and even injurious at times.

Although planned with the utmost exactness, it sometimes happens that the size of the lens is misjudged and the corneal section is made too small. If this occurs, the incision should be lengthened by one or two clean snips with a pair of scissors. Should prolapse of the vitreous humor take place during the

delivery of the lens, the lens had better be carefully removed with a loop or a spoon, and if necessary, an iridectomy performed. Prolapse of the vitreous humor occurring after the extraction of the lens, is much less serious for the time being. It interferes, however, with the proper coaptation of the lips of the wound, and renders inflammatory reaction more liable; while in many cases it becomes a most harmful factor for the future welfare of the organ.

Usually, there is some discomfort for a few hours after even an uncomplicated operation. Should this continue and be at all marked, the bandage should be removed and the eye inspected. At times, great relief can be obtained by gently pulling down the lower eyelid and permitting exit to an accumulation of tears, or comfort offered to the patient by allowing a faultily placed eyelash or lid border to fall into proper position. If the eyeball appears the least injected and the slightest signs of iris reaction be present, atropin or scopolamin should be immediately instilled into the conjunctival *cul-de-sac*. If suppuration appears, it usually takes place before the third or fourth day, and is traceable to infection, which is generally due to lacrymal disease. In a few instances it is dependent upon a lack of nutrition to the eye. If it is due to the former complication, it is best combated by cauterization of the edges of the corneal incision, the instillation of sulphate of atropin, and the use of hot compresses. The latter form is best cared for by attention paid to the general health.

Both eyes should not be operated upon at one sitting, in order that any unforeseen and harmful local and systemic complications arising after the primary procedure, may be given opportunity for avoidance during or after the second operation. Several weeks' interval at least should be allowed to elapse between the two extractions even when the cataracts are about equally mature.

An eye whose lens has been removed is termed aphakic. In order to render the vision of such an eye useful, the organ must be provided with an artificial lens corresponding in relative strength to the crystalline lens that has been removed from it, plus a cylindrical one to correct any astigmia which may result from cicatrization of the corneal incision. To this artificial lens, a convex spherical one of two or three diopters' strength for use during near work, must be added. As cicatrization is generally not completed until from four to six weeks after the operation, it is better to postpone ordering permanent glasses until after that period of time.

No case can be considered as having been successfully operated upon until at least three to six months after the actual procedure.

The old methods of depression and reclination (couching), have, by reason of coarse and destructive after results, been practically abandoned, except in a few appropriate cases among the old and the decrepit, in whom, for example, sight is legally required for a brief period of time.

Erythropsia, or colored vision from changes in color-perception, is said by some to be the result of after-images. It may follow both the simple and the combined forms of extraction, especially the latter, even several years after the procedure. It is quite common in some countries—particularly in India.

Editorial

TRANSACTIONS OF THE NATIONAL ASSOCIATION OF U. S. PENSION EXAMINING SURGEONS.

We are pleased to present in our columns this month, the first two papers, one by Dr. Ernest Laplace, Professor of Surgery in the Medico-Chirurgical College, and the other by Dr. D. J. McCarthy, Professor of Medical Jurisprudence in the University of Pennsylvania, of the series read at the last annual meeting of the National Association of U. S. Pension Examining Surgeons, at Atlantic City. The balance of the articles, all likewise by writers of exceptional merit, will be published at the rate of two or three per month, until the supply shall have been exhausted. These papers will no doubt be appreciated by the members of the Association, to all of whom the Monthly Cyclopædia will be sent as long as the articles appear, as well as by our subscribers.

Cyclopædia of Current Literature

ACETONE TREATMENT OF INOPERABLE CARCINOMA.

Eight cases of inoperable carcinoma are reported by the writer, treated with acetone as first used by Gelhorn. The patients had passed beyond the reach of any radical operation, and in some cases the cancer had consumed the greater part of the cervix and vagina. The treatment, in a simple and harmless way, has given these patients a period of comparative ease and comfort. The treatment is of value only in inoperable cases, and does not give a permanent cure, but ameliorates the chief symptoms and makes the life of the patient endurable. The terrible odor, discharge, and hæmorrhages are all relieved, and when they return the treatment can be given again without harm. The hæmorrhages, septic absorption, and odor, are all stopped. D. W. Tovey (Medical Record, November 6, 1909).

ARTERIOSCLEROSIS, NATURE OF.

The dominant primary event in the arteriosclerotic process—syphilitic, senile, or functional—is a localized, or, it may be, a diffuse weakening of the arterial wall, and especially of the media. This induces strain on the remaining coats; and, if this be not excessive, that strain leads more especially to connective tissue overgrowth, and the development of the characteristic lesions of arteriosclerosis. J. G. Adami (American Journal Medical Science, October, 1909).

CANCER, THYROIDECTOMY AND.

After years of careful observation of many cases of carcinoma and sarcoma, in all stages, the author has come to the conclusion, looking on the thyroid gland as the flywheel of body growth and metabolism, that this organ is very liable to overwork, that the body metabolism in this manner is liable to become over-

driven, and that so the thyroid may be a causative factor in the origin and continuation of malignant disease. Holding these views, he long had it in contemplation to perform more or less complete excision of the thyroid in inoperable carcinoma as the best means of eliminating or ameliorating a disturbing factor in the diseased organism of the carcinomatous. Five cases are reported, in which this was done, and there seems to be no doubt that partial removal of the thyroid had an influence on these growths. It seems to have a deterrent effect on the rate of growth of the primary tumor; the secondary glands, too, seem to be favorably affected, as in these cases there was a softening change in the glands, and they were much less painful. In all cases the pain was quickly relieved. The patients, instead of losing weight, as they were doing before the operation, put on weight. Another thing noted in all these cases was a distinct slowing of the rate of the pulse. The second, third, and fifth patients were operated on at a much earlier date than the first and fourth, and it would appear to be best to intervene as early as possible, not waiting until the patient is too low and weak. W. Stuart-Low (Lancet, October 16, 1909).

CLUB FOOT, CURE OF, IN INFANCY, WITHOUT OPERATION.

Practically all cases of congenital club foot are curable without operation, if taken in hand before the child is six weeks old. The younger the infant at the time of instituting treatment, the better. The results are better than if treatment is postponed until operation becomes necessary.

The routine treatment consists of manipulation, followed by a plaster bandage, every two weeks, progressively overcrowding the foot; as soon as the foot offers no resistance to overcorrection, and maintains the normal position naturally, continued manipulation, a tin splint, to be worn at night, or a brace, if the child is old enough to walk. Relapses are bound to occur under any form of treatment, if the aftercure is neglected; the patient should be kept under close observation for one year after apparent complete recovery. Albert Ehrenfried (Boston Medical and Surgical Journal, November 18, 1909).

DYSENTERY, AMŒBIC, TREATMENT OF.

The rest-supportive treatment, consisting of rest in bed, a milk diet, the use of mild irrigations and bismuth subnitrate in heroic doses, has been given by the authors with by far the most satisfactory results. Surgical interference is indicated if the improvement does not rapidly follow the above-mentioned method. W. E. Deeks and W. F. Shaw (Medical Record, November 13, 1909).

ETHYL CHLORID AS A GENERAL ANÆSTHETIC.

Ethyl chlorid is regarded by the writer as a comparatively safe and reliable general anæsthetic, which is most suited for operations for removal of adenoids and tonsils in children. It is simple of administration, and does not require an expert, or one of large experience, to give it. The patient is under the influence quickly, is out almost immediately on completion of the operation; there are no unpleasant or dangerous effects from its use, either during or after the operation. This anæsthetic is not only especially applicable in operations in the throat, but should be used in most other operations performed on children. When the inhaler is kept over the patient's nose and mouth, he can be kept under the

anæsthetic as long as desired. It is only when that is removed that the patient regains consciousness more quickly than with other anæsthetics. When long operations are necessary on the nose or throat, the writer advised first putting the patient under ethyl chlorid, and then continuing deep anæsthesia with ether, using the drop method. E. M. Sill (Medical Record, October 23, 1909).

HEART MASSAGE IN SURGERY.

Heart massage is an established method of resuscitation, ten successful cases having been reported by ten operators. Heart failure is rarely primary in chloroform anæsthesia, it is therefore essential that respiration be invoked by artificial means in conjunction with heart massage. Artificial respiration alone will not inaugurate heart contractions nor maintain blood-pressure. The best results have been obtained by the subdiaphragmatic method. The most frequent indication for its use is in chloroform narcosis with cessation of respiration and circulation. In other conditions of heart failure, secondary to respiratory failure and not dependent upon organic changes in the heart, the method is applicable. Further use of the method will widen its field of usefulness.

The possibility of resuscitation bears a definite relation to the time that has elapsed between the cessation of the heartbeat and massage. The briefer the interval the more rapid is the response to heart massage. C. S. White (Surgery, Gynæcology and Obstetrics, Oct., 1909).

HERNIA, ETIOLOGY OF.

Protest is made against the current household practice of applying an inelastic band to the infants' abdomen, as it tends to push the viscera downward, and to produce a tendency to hernia. Normally, the infant abdomen forms an inverted cone, as it were, with the largest circumference near the costal arch; the inguinal region is comparatively empty of contents, the walls are depressible. With the tight "belly-band" the viscera are forced down into this region, and the abdominal wall here is stretched taut, and offers resistance to the finger. The writer does not accept the possibility of a truly congenital hernia; the hernia is always acquired later, he asserts, and the conditions produced by the traditional "belly-band" favor its production when the region is exposed to mechanical stress in later life. C. Widmer (Correspondenz-Blatt für Schweizer Aerzte, October 1, 1909; Journal of the American Medical Association, November 6, 1909).

LUPUS VULGARIS, NEW PRINCIPLES FOR TREATMENT OF.

The writer gives an illustrated description of a method of treating lupus which is simple, and yet seems to cure in a comparatively short time. In spite of its numerous disadvantages, excision of the lupous patch, he declares, is still the most effectual method of treating lupus, but he believes that all its essential features can be obtained by undermining the patch under local anæsthesia. Two parallel incisions are made through the skin down to the muscles, allowing the entire skin to be separated from the muscles below, to form a bridge flap. Iodoform gauze, dipped in Peruvian balsam is then drawn through beneath the flap to prevent its growing down again. The lupous patch is thus medicated from above and below, and the lupus soon heals, leaving apparently normal skin, except that it is inclined to be more pigmented than normal. The tint has grown constantly more and more like that of normal skin in the course of the six

months his patients have been under observation. This undermining treatment has been applied in four cases to date, but only for lupus on the limbs. There is no bleeding, no need for assistance, no danger, and no defect is left. The after-treatment is painless, the gauze not being changed until granulation has occurred over the whole raw surface, which is generally in about a week; the Peruvian balsam facilitates the removal of the gauze, and the cure is complete in one or two months. The cosmetic result is excellent, and extensive areas can be treated in this way, as desired.

The conditions in the face are less favorable for the undermining technic, and for this the writer has been experimenting with magnesium arrows, stuck through into the subcutaneous tissue, such as he uses in treatment of cavernous angioma not adapted for extirpation. The result in the lupus cases was prompt and beneficial. An opening is made with a tenotome, and the little stick of magnesium is pushed from directly under the patch or into its depths. This method has been applied in only one case, but with the exception of a few isolated nodules, the extensive lupus, almost covering the face, has healed, leaving merely a firm, reddish scar. Payr (Deutsche Zeitschrift für Chirurgie, Bd. C., S. 1-645; Journal of the American Medical Association, November 13, 1909).

NAUSEA FOLLOWING ANÆSTHESIA, PREVENTION OF.

The author urges the patient to drink an abundance of water for two days preceding the operation, and receive saline enemas every few hours after the operation, to lessen the thirst, nausea and shock. When not contraindicated by the operation, it is sometimes advisable when ether mucus has been swallowed to allow the patient to drink all the water desired as soon as consciousness returns; if this is vomited, the stomach is washed out, and if it is retained the ether mucus is diluted. Another method advocated by Kelly, that is often successful in preventing nausea and vomiting, following ether narcosis, is to wash out the stomach thoroughly at the conclusion of the operation, and then leave in the stomach six ounces of a saturated solution of magnesium sulphate. L. F. Watson (Old Dominion Journal of Medicine and Surgery, September, 1909).

NITROGLYCERIN IN CHRONIC MYOCARDITIS.

In the experience of the author, one-drop doses of 1-per-cent. solution of nitroglycerin, given with digitalis, every two or three hours, are practically inert; but, if from $\frac{1}{20}$ to $\frac{1}{10}$ of a grain be given every minute, for twenty or thirty doses, brilliant results will be obtained, days before the effect of digatilis can possibly be expected. In œdema of the lungs the toleration for this drug is most extraordinary, and relief from dyspnœa is uniformly obtained before the physiologic effects, such as flushing of the face and throbbing headache, are produced. Two cases of myocarditis are reported, with cardiac failure and œdema of the lungs, one without and the other with valvular lesion, in which nitroglycerin was of the greatest service. S. B. Ward (Albany Medical Annals, November, 1909).

PLEURISY AND PNEUMONIA IN INFLAMMATION OF INTRA-ABDOMINAL ORGANS.

Pleurisy and pneumonia are much more frequently caused by infectious diseases within the abdomen than has hitherto been believed. The right side is more frequently involved than the left. It is the duty of surgeons to constantly bear

this in mind, and carefully examine their patients for pleural and pulmonary complications during the course of intra-abdominal affections, and, after operations. The frequency of abdominal infection as a cause of pleural effusion and pneumonia calls for a painstaking examination of the intra-abdominal organs in each case in which the signs of intra-thoracic inflammation exist. The infection of the pleura and lung, following intra-abdominal inflammation is conveyed through the diaphragm, omentum, and mesentery, by way of the lymphatics. "Ether pneumonia" does not exist, and the term anæsthetic pneumonia should be entirely discarded. If, during the course of an intra-abdominal affection, pneumonia or pleurisy should be discovered, they constitute no contra-indication to operation, but, on the other hand, urgently call for drainage of the primary focus of suppuration. G. Paul LaRoque (International Journal of Surgery, September, 1909).

POSTOPERATIVE PSYCHOSES.

Postoperative psychoses, seen often in childhood and the aged, occur also in women in the prime of life, most frequently between the ages of thirty-five and forty-five. Anæsthesia, physical shock, the kind or severity of the operation are not effective causative agents. Infection, auto-intoxications, drug intoxication, are important factors, but there are many psychoses entirely independent of them. Mild aberrations of a transitory nature are very common. An unstable nervous system, and especially undue anxiety and worry about the operation and the trouble which leads to the operation are the most potent factors in bringing about profound nervous sequelæ. Prognosis is favorable. Prophylaxis consists in quieting and reassuring the patient. In this connection, the nurse is most important. Care should be taken to avoid any legal or forensic complications by frankly dealing with the family from the onset of the trouble. H. A. Kelly (Surgery, Gynecology and Obstetrics, November, 1909).

RENAL TUBERCULOSIS, DIAGNOSIS OF.

The subjective symptoms of renal tuberculosis are usually those of a cystitis. A causeless cystitis, or a cystitis that began so imperceptibly that the patient cannot definitely fix the time when it really started; a cystitis in a person who had the history of former tuberculous troubles; a cystitis that is rebellious to treatment, or especially painful; all these should make one suspicious that he may have to do with a tuberculous process. The development of tuberculosis in guinea-pigs that have been inoculated with the sediment, demonstrates absolutely the tuberculous nature of a urinary infection, as does also the finding of red-staining, acid-fast bacilli in catheter specimens of the urine. We are practically sure of the tuberculous nature of a process when we can find no organisms in a purulent urine.

The rarity of tuberculous cystitis, except as it is secondary to renal tuberculosis, warrants us in almost making a diagnosis of renal tuberculosis whenever a tuberculous urine is found.

The most accurate way of telling which kidney is involved is by cystoscopic examination. The changes in the bladder about the ureteric orifice, or the changes in the ureter itself will usually make clear which kidney is involved. Occasionally these changes may not be decisive, and catheterization of the ureters may be necessary to determine which is involved. One should usually catheterize the supposedly well ureter, to demon-

strate definitely that the process is unilateral, and that the well kidney is functionally competent. The danger of this is very small when it is carefully done. A. L. Chute (Boston Medical and Surgical Journal, November 4, 1909).

TUBAL PREGNANCY.

The diagnosis of tubal pregnancy before hæmorrhage has occurred is impossible, according to the writer. The diagnosis of a tubal mole from some other conditions is difficult, but nearly all the conditions which may reasonably be mistaken for a tubal mole equally require prompt operation. Slight hæmorrhage from perforation of a pregnant tube is often accompanied by death of the fœtus and rapid absorption of the effused blood. When great intraperitoneal hæmorrhage has taken place from perforation of a pregnant tube operation is urgent and simple. The danger from delay in operating is greater than that coming from the inexperience of the operator, if only he be one who understands antisepsis. After perforation of a pregnant tube the amnion may protrude into the peritoneal cavity, and the child grow free among the bowels, covered only by its amnion. In that case the placenta, as it grows, may become implanted on almost any abdominal viscus, and cover a large area. In such cases it is probable that after the primary preparation the mother runs hardly any risk until after the death of the child. In such cases, operation while the child is viable is an extremely dangerous one, and is more dangerous the more advanced the pregnancy. The danger is from hæmorrhage resulting from separation of the placenta. The experience of more recent operators shows that it is nevertheless safer to remove the placenta than to leave it to come away. The methods of preventing such hæmorrhages which have proved successful are: (a) the removal when possible of the viscera to which the placenta is attached; and (b) extensive prophylactic ligature of the arteries supplying the placental site. If the operation is postponed until after the death of the child, some time afterward the circulation through the placenta ceases, and it becomes thrombosed. If an operation is now done the placenta can be peeled off, without hæmorrhage, and the operation is simple and safe. When the pregnancy is underneath the peritoneum there is danger of rupture at any period of the pregnancy. Therefore in this case the sooner operation is done the better. G. Herman (Clinical Journal, July 7, 1909).

TYPHOID FEVER OF SHORT DURATION.

Some, at least, of the fevers which formerly would have been considered febricula or simple continued fever are in reality typhoid fever. In the present state of our knowledge it would be rash to assert that all mild fevers in this latitude, for which no other cause can be found, are typhoid in nature, but the writer asserts that there have been no series of cases of mild fevers in Bellevue Hospital in the last five years which could not be proved to be either typhoid fever or some easily recognized disease, as bronchitis, gastro-intestinal disturbance, etc. This investigation also brings out the fact that a great deal of confusion exists in the literature concerning the milder forms of typhoid fever, and emphasizes the urgent need, from the epidemiological standpoint, of a more thorough study of these forms. No statistics have been accumulated, since exact methods of diagnosis have come into general use, to show the relative propor-

tion of the mild to the severe cases of typhoid fever. Doubtful cases should be treated as typhoid fever until the cause of the disease can be found. Warren Coleman (American Journal Medical Sciences, June, 1909).

ULCERATION OF THE RECTUM, CHRONIC.

Patients who are suffering from ulcerative colitis should be treated by medical means in the earlier stages of the disease, because many of the patients with sporadic cases can be cured, if they are taken in hand at once. The general treatment is to prevent the accumulation of discharges in the rectum, to soothe the irritated state of the bowel, and, if possible, to prevent the multiplication of the infective micro-organisms in the mucous membrane. The patient is to be kept in bed, and a drachm dose of magnesium sulphate administered every hour, with the object of promoting a flow of lymph toward the intestinal walls, which will perform the same function as does the increased flow of blood through an inflamed part, produced by the application of a fomentation. The rectum is also to be well flushed out daily with an enema of boric lotion, or salt solution, at a temperature of 105° F., while every other day the enema is altered to one containing 10 grains of silver nitrate in a pint of distilled water. If these means fail, they should not be persevered with in the hope of improvement, as the condition is progressive, and becomes more serious with lapse of time, but should be discarded. Mercury may then be given in the form of calomel, in a single dose of 10 grains, followed by three to five grain doses, if the drug seems to cause improvement. Ten grain doses of tannigen are sometimes useful, and chlorodyne is serviceable when there is much tenesmus. It can be given in 10 minim doses, with 20 grains of bismuth oxycarbonate in an ounce of chloroform water. Some advise the use of quinine in a single 15 grain dose of quinine sulphate, repeated in four hours, if the temperature has not fallen, followed by 5 grain doses until the symptoms subside. Enemata containing 1 or 2 drachms of salol dissolved in oil of turpentine, and added to each pint of hot water also highly recommended. D'Arcy Power (Practitioner, August, 1909).

Book Reviews

EXPERIMENTAL PHARMACOLOGY. A Laboratory Guide for the Study of the Physiologic Action of Drugs. By Charles Wilson Greene, Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Third Edition, with 37 Illustrations. Seventy-six Pages. Philadelphia: P. Blakiston's Son & Co., 1909. Price, Cloth, $1.00.

In this, the third revised edition of his useful work, Dr. Greene emphasizes the need of laboratory instruction, if proper understanding of the principles of pharmacology are to be acquired. He gives explicit directions, suitable to the needs of the student, for the carrying out of the various experiments he advocates. He leaves the decision as to the results obtained to the experimenter, however, a disadvantage, in our opinion. On the whole, the book is an excellent one, when the work of the student is carefully supervised by instructors.

THE PSYCHIC TREATMENT OF NERVOUS DISORDERS. By Dr. Paul Dubois, Professor of Neuropathology at the University of Berne. Translated by Smith Ely Jelliffe, M.D., Ph.D., Visiting Neurologist, City Hospital; Instructor in Materia Medica and Therapeutics,

Columbia University, New York; and William A. White, M.D., Superintendent Government Hospital for the Insane, Washington, D. C.; Professor of Nervous and Mental Diseases, Georgetown University. Sixth Revised Edition. Octavo; 485 Pages. New York: Funk & Wagnalls Company, 1909. Price, $3.00, net.

The sixth edition of Dr. Dubois's work sustains the enviable reputation acquired by its predecessors. The author is not only a psychologist of the first order, but also a competent neurologist. As a result, the work not only instructs the physician who wishes to become familiar with the rapidly developing psychotherapy, but it gives him a sound foundation for the proper appreciation of any pathological condition that may underlie a mental aberration he might be called upon to treat. It is admirably translated, and placed on the market at a very reasonable price.

Epoch-making Contributions to Medicine, Surgery, and the Allied Sciences; Being Reprints of those Communications which first Conveyed Epoch-making Observations to the Scientific World, together with Biographical Sketches of the Observers. Collected by C. M. B. Camac, M.D., of New York City. Octavo of 435 Pages, with Portraits. W. B. Saunders Company, 1909. Artistically Bound, $4.00, net.

Dr. Camac has rendered a veritable service to the profession by supplying it with the present work. It is not only of value from the historical standpoint, but it constitutes a valuable reference book, where authors may find exact information concerning the initial steps of each great medical advance. Lister (antisepsis), Harvey (the circulation of the blood), Auenbrugger (percussion of the chest), Laënnec (auscultation and the stethoscope), Jenner (vaccination against small-pox), Morton (anæsthesia), and Holmes (puerperal fever), are the masters and their immortal contributions given in the present volume. It is to be hoped that the author will continue his labors with Pasteur, Koch, and the many other innovators of modern times, as his subjects. The work is beautifully gotten up and illustrated; much credit is due to the publishers on this score.

Medical Sociology. A Series of Observations Touching Upon the Sociology of Health and the Relations of Medicine to Society. By James Peter Warbasse, M.D., Surgeon to the German Hospital, Etc. New York and London: D. Appleton & Company, 1909.

It is a good sign when members of the medical profession write systematically upon the more sociologic questions involved in their calling. In the book before us we have, from the pen of a well-known surgeon of Brooklyn, twenty-five chapters dealing with the sociology of health, and thirty-five upon medical science and medical art. It is an eminently sane, wholesome presentation of a number of cognate topics, and well worth perusal, not only by all physicians, but by intelligent laymen, as well.—J. M. T.

Further Advances in Physiology. Edited by Leonard Hill, M.B., F.R.S. Cloth; 440 Pages, with Illustrations. New York: Longmans, Green & Co., 1909. Price, $4.20.

The present work is the second in a series in which the recent advances in physiology are set forth by a number of physiologists, each taking a special subject. While the first volume dealt with metabolism, secretion, and excretion, mainly, the present volume deals especially with circulation, respiration, the neuro-muscular system, and vision. Benjamin Moore studies the equilibrium of colloid and crystalloid in living cells; Martin Flack, the heart; Thomas Lewis, pulse records in their relation to the events of the human cardiac cycle; Leonard Hill, the vascular system and blood-pressure; Arthur Keith, the mechanism of respiration in man; M. S. Pembrey, the physiology of muscular work; N. H. Alcock, the physiology of nerve; Joseph Shaw Bolton, cortical localization and the functions of the cerebrum.

Although the book is primarily intended for workers in physiology, it is, nevertheless, of value to the pathologist also, since it gives him a deeper view into many functions which should be clearly understood in their normal state, to render the recognition of abnormal conditions possible.

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Clinical Lecture

URAEMIA.*

BY JOHN V. SHOEMAKER, M.D., LL.D.,
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GENTLEMEN: This patient, age 64 years, was brought into the hospital by the police patrol last evening, with a history of having found him on the pavement in an unconscious condition. We have since learned from his family that he has never had an attack of epilepsy or of syncope at any time, but that during the last week he complained daily of headache, languor, dizziness, anorexia, constipation and slight œdema of the ankles and feet. However, he pursued his regular occupation as a blacksmith; which he has followed for over twenty-five years. We were unable to ascertain his family history.

Social History.—He is married, and is the father of four healthy sons and two daughters. His habits have not always been very good. Nearly every Saturday afternoon and evening he went to the saloon and returned to his home in an intoxicated condition. His favorite drink being whiskey.

Hospital Records.—On admission his pulse was 120 per minute; temperature 100⅗° F.; respiration, 30 per minute. The skin felt hot and dry to the touch; respiration, panting in character with a uriniferous odor on the breath and slight muscular twitching of the arms and legs. The pupils were normal and reacted to light. The patient was catheterized and nine ounces of urine were removed, which showed, on examination, a large amount of albumin and many hyaline and granular casts.

Diagnosis.—The diagnosis of uræmia in this particular case is quite easy. But in cases where no history can be obtained, and the symptoms are more

* Delivered in the Clinical Amphitheatre Medico-Chirurgical Hospital.

obscure it is often very difficult to make a correct diagnosis. In this patient the symptoms are quite typical and the history strongly points to uræmia. A differential diagnosis of apoplexy, opium poisoning, meningitis, hysteria, alcoholism and diabetic coma should be made in all such cases. We have, for your convenience in studying these different diseases, placed on the blackboard the tables showing the most important differential points.

Differential Diagnosis:—

Uræmia.	*Apoplexy.*
1. History of Bright's disease.	1. History of disease of the arteries.
2. Coma follows convulsions.	2. Coma precedes convulsions.
3. No paralysis.	3. Paralysis and spasm of one side.
4. Albumin and casts in urine.	4. Normal urine.
5. Œdema.	5. No œdema.
6. Pupils normal.	6. Pupils unequal or dilated.

Uræmia.	*Opium Poisoning.*
1. History of Bright's disease.	1. No previous history.
2. Coma preceded by other symptoms.	2. Coma comes on gradually.
3. Pupils normal.	3. Pupils contracted and do not respond to light.
4. Œdema.	4. No œdema.
5. Respiration hurried.	5. Respiration slow, deep, and full.

Uræmia.	*Meningitis.*
1. History of Bright's disease.	1. History of injury or disease.
2. Œdema.	2. No œdema.
3. Waxy countenance.	3. Flushed face.
4. Albumin in urine.	4. Normal urine.
5. Delirium usually mild or absent.	5. Wild delirium.

Uræmia.	*Hysteria.*
1. History of Bright's disease.	1. History of hysteria.
2. Albumin in urine.	2. Urine pale and abundant.
3. Reflexes absent.	3. Reflexes pale or exaggerated.

Uræmia.	*Alcoholic Coma.*
1. Presence of albumin in urine.	1. Absence of albumin.
2. Waxy countenance.	2. Flushed face.
3. Urinous odor.	3. Alcoholic odor.
4. Œdema.	4. No œdema.

Uræmic Coma.	*Diabetic Coma.*
1. History of Bright's disease.	1. History of diabetes.
2. Albumin in urine.	2. Sugar in urine.
3. Skin is not harsh and dry.	3. Skin is harsh and dry.
4. No characteristic emaciation.	4. Emaciation.

Etiology and Pathology.—Uræmia is a condition which is caused by the retention of toxic substances within the blood which ought to be excreted by the kidney. We have as yet not separated these substances and their nature is therefore obscure. This condition is most common in Bright's disease but it may occur in gout, scarlet fever, typhus fever, yellow fever and cholera in

which the kidneys and the blood may be affected. The etiology and pathology of this condition is based upon theories. It is claimed by authorities that it is due to the presence in the blood of urea, uric acid, ammonium carbonate and water. These poisonous substances increase the toxicity of the blood-serum and this is responsible for the symptoms manifested. Another theory advanced is that uræmia is due to anæmia or œdema of the brain. This theory explains the nervous symptoms such as coma and convulsions.

Treatment.—After studying the condition of the patient,—and we had sufficient reason to suspect uræmia,—we placed the patient in an electric pack and put on the tongue three grains of calomel which he soon swallowed. An hour in the electric pack produced profuse perspiration, and partial consciousness was restored. The electric pack was then removed and the patient wrapped in heavy woolen blankets, which kept up the perspiration. He also had a copious action of the bowels. Mild diuretics were now indicated and we gave him a dram each of liquor ammonii acetatis and spiritus ætheris nitrosi in a cup of hot water every two hours. Hypodermatically, he received one minim of spiritus glycerylis nitratis every three hours to lower the increased arterial tension. This drug also acts as a valuable diuretic in these cases. Liquor ferri et ammonii acetatis may, in a few days, be employed as a diuretic and tonic. The following combination in a capsule serves me well in such nephritic cases as this one:—

℞ Spiritus glycerylis nitratis.....*m*xx.
Sparteinæ sulphatis .....gr. v.
Phenylis salicylatis .....3j.

Misce. Fiant capsulæ No. xx.
Signa: One capsule four times daily.

The diet must consist of liquids only, and milk should be the chief article of food for the next few months.

Prognosis.—By careful treatment, rest in bed, with proper diet, I believe the patient will entirely recover from this attack. Usually these patients die in less than two years. Many die within four months' time after an attack of uræmia.

Original Articles

PAINFUL HEEL.

By C. F. WAHRER, M.D.,

FORT MADISON, IOWA.

Under this affection we may find quite a variety of pathological conditions, some of a gouty and rheumatic origin in the patients beyond early life, but in the younger we may as well look for gonorrhœal, and in the ill nourished, for neuralgic troubles.

The patients thus afflicted complain of an intensely acute pain which in some is almost unbearable, in others to that degree as to necessitate the use of canes or even crutches.

The average physician looks at once for flat-foot or some form of talipes, calls it rheumatism, or a sprain, does it up in tight bandages, enforced with the numerous liniments, only to be defeated, just as his predecessor was, and in nearly all such cases there was a predecessor or two. Such patients usually have been the rounds, before they come to you, and I want to put you on your guard, so when they come to you, they will find one doctor prepared for them.

Had it not been for my Osler when my first patient came to me, I should have met my Waterloo, but Osler was the only one in my then rather good library of excellent authors who mentioned the matter of painful heel. He classed it then under the neuralgias, though mentioning that it was often rheumatic or gouty. Older authors spoke of these affections as pododynia, plantar neuralgias, including rather too much.

Recently Isaac D. Steinhard, in the March 27, 1909, *New York Medical Journal,* reports thirty cases in which he claimed a clear etiology in all of his cases.

In the young whites he generally found gonorrhœa the cause, while in the older patients he found gout and rheumatism the more frequent cause. A few were due to traumatism. In practically all he found an exostosis in shape of a spicula of bone, which caused the pain, when stepping upon the foot. Of course he employed surgical means for relief, which in his cases was usually successful.

My experience with six cases was not similar to his, as all my cases proved to be neuralgic in origin, were so treated, and all recovered. None relapsed, the first case occurring twenty years ago, the last one, one and one-half years ago. This may be a mere matter of coincidence, which for the purposes of my paper does not matter, as every reader of this article must make his own diagnosis, my main object being to put you on your guard, when these cases come to you, so you will not be diagnostically asleep, or napping.

May I digress a moment here and preach a sermonette on not only the importance of a correct diagnosis, but of the great importance of what are wrongly called "little things." There are no such things as little things in medicine. One such a little thing as a gonococcus can raise the devil for several generations, if you will just let him alone a little while, just don't diagnose him for a week or two, and he will be a million legions, yea he will be as many as were promised the tribes of Israel, as the sands of the seashore, and then some. A wart may be a very insignificant thing unless it is a cancerous wart, then it ceases to be little, it will interest you more than you can manage, I fear. Nowhere does the scriptural saying mean more than in medicine—"He that is faithful in little things, etc." So back to our heel.

If, after careful examination, we find we have a gonorrhœal origin, let it so be treated. If gouty or rheumatic, then anti-arthritics will be the remedies, in which galvanism will play no small part. If the exostosis is found, surely no other remedy will take the place of the knife and chisel. But if we find, as

I did, in all my cases, that they are neuralgic, which from my limited experience, and rather extensive experience of others, as found in the literature, then we must institute anti-neuralgic treatment, which is about as difficult a therapeutic feat as we have.

If the patient is anæmic, under-nourished, worked down, nervous, suffering from indigestion, constipation, and the usual round of complaints of the neuralgics, then it takes a full knowledge of the patient's condition to be able to know what is best to do.

But here, as well as in many other worrisome cases, industry and the exercise of good judgment will help you out, and finally bring your patient sufferer relief. Before resorting to positive remedial measures, attention must be given to the patient's shoes, if they are well-fitting, if the heels are broad and square, or if the patient has a slovenly habit of walking, whether there are any calluses or corns or other lesions on the feet. All these little details have their full weight in insuring success or their neglect be followed by failure.

Now, having the preliminary matters all attended to, we may proceed to our neuralgic heel. Out of my patients only one was a man, the others, women. The first two were sisters, one married, the other single. The man was about fifty-six years old. The last one a young lady of twenty. Not one of these was normally nourished. All were more or less anæmic. And every one was habitually constipated. To begin the treatment all were given castor oil, one ounce every morning and then gradually diminished until only one easy mushy stool was had every day. It is claimed that castor oil is itself an anti-neuralgic, and even if not, it will aid to clear out the more or less septic canal, and thus aid digestion, and also help to assimilate the other drugs given. Galvanism should be at once applied and continued two or three times a week until cured. Acetanilid combined with quinine, arsenic, strychnine and iron generally does effective work, when given in rather generous doses. Of course each patient's dose must be determined. A course of treatment like this will, in the majority of cases soon bring relief, and by persistence, a cure. Slight relapses are common, but continued treatment will again be successful. The co-operation of the patient is absolutely necessary. This, owing to the previous failures with other treatments is not always easy to obtain, because the average patient with this trouble is usually somewhat skeptical. I wish to emphasize that the border line between the rheumatisms and the various neuralgias is not always etiologically nor pathologically as distinct as we could wish, and it is not always the fault of the practitioner because the diagnosis is not pedantically exact. So when in doubt, and success in treatment not very brilliant, it is sometimes well to give both anti-rheumatics and anti-neuralgics, because some of these serve equally well in both affections.

This may be, or appear as, a confession of weakness, but the best of us must confess to this at times. If any one is inclined to sneer, let him ask himself what are the exact indications for the various forms of nasal catarrh, or how many cases of hay fever he has cured, not to mention his therapeutic resources in carcinoma and sarcoma.

Remember this is by no means to imitate the shotgun idea of putting in a

little of everything so as to make sure that something may hit something, for such methods are to be deprecated. But my recommendation is to be used only in such cases where it is reasonably certain that the neuralgia is of a rheumatic nature, or that the two diseases are co-existing in the same patient.

For instance, we know that galvanism is very useful in both neuralgia and rheumatism; so are acetanilid, some of the salicylates, gelsemium, salicin, and indirectly, arsenic, strychnine and the chalybeates.

In practically all these patients we have depraved condition of the general health, and we will make but indifferent progress if we do not at once begin to look to that, and so inform the patient. Therefore, the very first thing to do is to clean out the alimentary canal and keep it clean. To this end the regulation of the diet may contribute much, the main thing in these cases is usually to get these people to eat enough, as most of them are underfed, and metabolism is perverted. Otherwise stated we must take the broader view in these special cases, and not look to drugging alone to do for us what only a most comprehensive and wise management can accomplish.

If we had a specific for each symptom, then the reign of the lazy physician would soon be inaugurated. And if so, the laity would soon commit the symptoms and their remedies to heart and physicians would soon pass to the rear and patent medicine houses and the embossed tablet with its cousin, the blown-in-the-glass-only-genuine panacea would rule the world. To the industrious physician who is willing to read and delve in medical lore, these rare things will, in time, become an open book. There are only a few, we hope who are still looking for remedies for dropsy, when they should be making a urinalysis looking for renal incompetence, or using the stethoscope for cardiac compensation; of those who are asking the correspondence editor of the penny medical journals for remedies to cure leucorrhœa, when they should examine their patients for endometritis or look for a latent gonorrhœa. I say, there are only a few such, but when you look for them, you would be surprised how many there still are.

So don't forget when a patient comes to you with a painful heel that there is no special remedy for it, until you have found the exact pathology for that particular heel.

MEDICAL AND SURGICAL TESTIMONIES ON THE MUMMY GROVE POTTERIES OF OLD PERU.

By ALBERT S. ASHMEAD, M.D.

(Continued from November issue.)

Herrera says, "that the greater part of these dances are of idolatrous kind, because thus they venerate their idols and huacas. For these dances they have different instruments, some flutes and a kind of bugle; others like tambourines; others like horns; and all used to sing, one or two chanting their verses and the rest repeating and striking their drum, holding each other by

the hands and crying out the first; and men and women responding; and at other times, drinking the wine which was made from corn and other things, until they fell down drunk."

"Of these superstitious cures, vestiges still remain in the mountains of Aina (Ayacucho) and of Chanchamayo. There are patients coming from there who had a disease like Uta, or Apaicha, inoculated after a contact with the nests of a mosquito, whose venom originates the evil. The best remedy to cure the patient is to take the nests and roast them and pulverize them and apply on the llagas (ulcers) of this Uta, then collect the powder which falls to the ground and scatter it to the wind, saying at the same time: 'Go away quick, Apaicha, I have not done more than to break your pot, go quickly.' " Compare this with what Herrera says of the pious priests, who have science to cure and divine. "In order to assist a patient they have a thousand farces; grasping a stick of a tree which no one but the pious one knows its virtue, they rub it in the windpipe, pounding and even drawing blood, they sigh and roar, and shake and kick, and make a thousand squeamishnesses; they sweat them for two hours and at the end they make in the mouth like phlegm, very thick, and a little hard ball and black in the middle of it, which those of the house of the diseased carry to the field, and throwing it away say: 'Go there, Demon, Demon, go there.' "

And among the Indians of Hispaniola is related the same: "They go to the door of the house, shut it and call: 'Quick to the mountain, or whither you wish, and they blow and join hands and shake the legs, and shut the mouth, and turn and hold hands.' "

Regarding the debated question of the anthropomorphous mutilated huacas, there are among others, two capital points; which from any point of view, have not yet been fully explained. First, why the amputation of members according to the artists who sculptured the huacas, are limited to the tibia-tarsal articulation, while the corroding disease, for which the amputation must have been done, might attack, and in effect does as well the legs, the forearms and arms and even the hands which are frequently lost by Indians when a snake stings them on the fingers; as their companions always cut off the hand as well as the foot when snake-wounded (see Gumilla). And second, why do those clay vessels, so well illustrating the blind, the lame, etc., never model examples of amputations of superior members?

I have myself expressed the opinion in some of my writings, that an arm was not represented amputated on those potteries because the pot really represented the soul of the body buried with it. Believing in immortality as these people did, they buried food and drink with the body to support it, nourish and quench its thirst, while on its four days' journey to paradise. Therefore, drink of some kind was put in the pot and buried with the loved one. Now, I said, if the departed lacked arms in the grave, unless artificial ones on the image of the pot were supplied, he could not reach out for the drink and food supplied for him. Therefore, if the buried one's arms had been cut off during life they were sure to put arms on the diseased image on the pot.

To this Dr. Palmer replied (Perhaps if it had been his pleasure to find a huaca without arms, as we present, it would take some value away from the graceful hypothesis of the illustrious American physician): "I show here," he says, "an example of a handless one, and even when it might be in doubt that it is by amputation, there would still remain the fact of its being a model without superior members, which are necessary to wait on a deceased in his tomb. Even if the huaca did not exist, there is still another fact which would invalidate the hypothesis of Dr. Ashmead. It is this: The Indians never would think it necessary to put in their tombs anthropomorphous huacas in the manner of servants, as all the historians concede that, when they give sepulture to a person, there entered jointly with them servants, so that they could continue to serve them as they had in life."

Ciezà de Leon says, of the Collas: "When natives die in the Collao, they cry with great tears many days, the women having in their hands pilgrim staffs, and girdles on their bodies, and the kinspeople of the deceased people carry, each one what he can, of ewes, lambs and corn, as well as other things, and before they bury the dead one, they kill the ewes, and put the Asaduras (not in dictionary) in the places that they have in the apartments. On the days that they cry for the deceased before they have buried him, of their own corn or of that which the kinsmen have offered, they make much wine and beverage to drink, and if they have a great quantity of it it shows for the defunct more honor than if they had little wine. They make then the beverage and kill the ewes and lambs. He says that the defunct is then carried to the fields where they have the sepulchre. Thither (if he was a lord) most people of the town accompany it, and when near, they burn ten ewes or twenty, more or less, according to who the defunct was, and they kill the women, children and *servants,* who had come with him, for to serve him seemingly to conform to this vanity. And these such, jointly with some ewes, and otner things of his house, are interred together with the body in the same tomb, putting (according to the custom among them) some living persons, and interring the deceased in this way, they return, all of those who had gone, in honor to the house where they went from, and there they eat food, which they had brought and drink the wine which they had made, going out from time to time to the places they had made near by, to the house of the lords, where in a circle and as was the custom, dancing and crying; and this during some days, when they command to join them the poorer Indians and squaws, giving them food and drink, of that which they had more than enough for themselves. And if the deceased was a great lord, they said that not at once on dying did they inter him, because before what they had made they held him some days, making use of other vanities not spoken of, which, being done, they say that they went out into the town, the women who had remained with other servants, not killed, with their blanket hoods, and some of them carried in their hands the arms of the lord, others the ornament which they put on the head, and others his clothes. Finally, they carried the chair in which he had sat and other things, and they marched to the sound of a drum, carried before by an Indian who was seen crying, and all said dolorous and sad words, and

they were seen singing funeral songs in most parts of the town, saying in these songs what the lord had passed through during life, and other things in that relation."

Garcilazo records: "That when the Inca or some priest of the chiefs died, they killed and buried alive the most favored of the servants, the women most desirable. These offered themselves to death, or they were seized by the hands for the love which they had for their lord."

As is seen, no religious sacrifices, no superstitious customs of certain warring tribes, or the habit or preoccupation of others, that for greater adornment of themselves, had made in the face the most varied mutilations, could explain the frequency with which these are presented in a single subject, depriving him at the same time of his nose, his lips and the inferior members. Neither can we believe that the punishments imposed upon criminals gives a satisfactory explanation. For if some tribes employed as punishment a certain mutilation, this was very restricted, and there are no proofs that it was in the form as shown on their huacas. And, moreover, there is no right to think that individuals, who had a civilization of the degree which these same clay figures testify to, could be responsible for that which belonged to tribes deprived of civilization and without there being contact between them.

There is also proof present, as we have seen in the representation, of symbol of death (the skeleton head on a dancing woman) in the plates on some of these huacas, that the huacas had relation with burial of the sick and dying. Indeed we may well think that the huacas were a sort of idol, to be worshipped, as we see them placed upon the floor in their dances, while the dancing sick and dying, or those doing honor at funerals perhaps, are engaged in appealing to gods for relief of some kind.

There are anomalies presented by the huacas, which are indicative that the mutilations are not the effect of punishment. For instance, in one we see the nose and mouth mutilated, and at the same time the head and body full of tumors; thus the intention of the artist evidently was to represent a diseased person, and not a punished criminal. A clay vessel which I have studied and recorded in Berlin with my own writings, shows the head of a diseased one, in which is seen clearly atresia of the buccal opening.

An analogous one in the Museum de la Plata, figures a person who has lost the nose and has the upper lip swollen in such a form that only to a pathological state could it be attributed.

A model discussed by Prof. Lehmann-Nitsche in the Latin-American Congress, presents a foot amputated and the bandage covering the stump is plainly visible.

I have published in Berlin a huaca with one foot amputated, while the other stump is being dressed by the patient represented, who has it thrown across his knee, while he holds a cup (of medicine presumably) in his hand right close to the unhealed stump.

Another huaca with the three mutilations is seen lying (presumably sick) in her bed.

Another represents a blind man striking a drum, and having a triple mutilation. In another huaca has been traced most delicately a tear, or cut out piece regularly circular only on the side of the mouth.

Now if they had been punished ones, those that present amputation of the feet, sometimes at least, there would be noted a loss of care, postoperative, and bones issuing, or deformed cicatrices would be noted, and not always be observed stumps very well carved, with sutures perfectly correct, as could have been produced only by careful surgical intervention.

I have sustained this same line of argument before in the Verhandlungen of the Berlin Anthropological Society in a huaca representing a foot amputated with the bone protruding, showing the flap removed which was needed to cover the tibia and fibula after amputation; the amputation had been a circular one.

We cannot agree, therefore, as to what Rivero and Tschudi have said, that "operative surgery" was completely unknown to ancient Peruvians, for we know and have proved it, that not only did they make amputation, but that they dared to intervene in trepanation of crania. And even their success was due to superstitious procedures, that does not change the argument at all. Dr. Tello and Dr. Palma have drawn out with their own hands from graves near Huarachiri (very ancient burial place) trepanned mummies still with the bandages put on them at the time of the surgical intervention. Various studies have put beyond any doubt the existence of trepanation among ancient Peruvians, and in the valuable collection of Peru there are many specimens most convincing.

Ancient Peruvians had instruments with which they operated: "Razors, kitchen knives, lancets, and many other kinds of tools," said Cobo, "but the use of iron is only known to Indians of Peru through New Spain. Their tools are made of certain stone, which the Mexicans call Iztlo, and those of Peru, Chillias, which is transparent as glass, and it is found of three colors, white, black and blue. There are many quarries of it, the same in Peru as in New Spain; cut in many median bits, that expose angles, and are cleaned from other stones more rough. From these they draw it out with great industry, and separate layers, with ridge in the middle, and with two edges, they make them one-third larger, in width one or two fingers, a little bigger than our kitchen knives, and they are edged so acute as to cut with them the beard; they are very fragile and easily blunted.

In the graveyard of Huarachiri, Dr. Palma says he found some instruments of copper. (Post-Columbian surely then or Spanish intrusions.)

That the Indians were expert in surgery is shown, also, by a relation of Gumilla's (El Orinoco Ilustrado, Madrid, 1741), where he speaks of the necessity for surgical intervention among the Indians, who hunt armadilloes, who do not carry dogs. With those who take along dogs, it is easy because the dogs seize them before they had entered in their caves. It is very risky to put one's hand in to draw them out, because there abound snakes which being heated take refuge in the caves. "By such custom succeed many misfortunes, especially in the nations of Indians, Caujitos and Chiricoas, who are wandering

without settled situations, to whom the armadilloes make the greater part of cost. There are no companies of these Indians who have not forty or fifty handless and blind ones. They are so barbarous, that if on drawing out the armadillo the snake bites them on the hand, their companions at once cut it off, or if they are alone, they themselves do it; the same if the foot is wounded there."

Fray Rodrigo de Loaiza (Memorial de los Cosas del Peru tocantes á los indios, 1586) says: "The best medicine that they have is to cut off with some sharp stones the arms and legs, etc."

Conformably to all that has been exposed after careful review of the ancient literature of Peru and that which in more modern times has been published in relation to this point, we see clearly that to explain the mutilations on the antlrropomorphous huacas, the hypothesis can only be admitted, that they represent something of pathological origin. This fact has been perfectly established for some time. But what disease was it they tried to represent? "If we admit," says Dr. Palma, "the existence of pre-Columbian syphilis, it is undoubted that that affection could explain what the great majority of the anthropomorphous huacas show us, since the disease attacks by preference the nose and upper lip as well as the lower member, sites where the huacas present their mutilations." Yes, but why think it is syphilis when the disease Uta, or the several diseases that are known to different tribes of Indians by that name, produces a thousand deformations of nose and upper lip and of lower member to syphilis's one. If syphilis and Uta combined, as I have also claimed is the case, could operate together their destructive tendencies in the same patient, then let us count in Uta on that debtor page of this grave account.

Even believing, as I do, in pre-Columbian syphilis, which was known to the pre-Incans, long before the Incans had conquered the Aymaran civilization, for the Incans still use the name, as I have said, Huanthi for syphilis, not having any word to express it in their own vocabulary, and even crediting these graves of the Yauyas (pre-Aymarans) in Huarachiri with being all pre-Aymaran, from which Dr. Tello has dug up those undoubtedly syphilitic skulls which he recently published in "La Antiquedad de la Sifilis en el Peru," yet I can not attribute to syphilis, as he does, the credit of having been the only disease presented by the artists on the huacas potteries. And if, as Dr. Palma says, he has found copper instruments in some of the graves excavated by Dr. Tello, surely those graves were not even pre-Columbian, *for no such instruments are found in pre-Columbian graves.* I do not intend to deny here the plausibility of syphilis (and pre-Columbian syphilis, which certainly was pre-Incan in date, long before Columbus's advent), as a factor in the awful phagedenism attending so many pre-Columbian diseases. I admit it, and always did; but I cannot agree to the displacement from its throne of glory of Uta, the corroding disease with many different names of pre-Columbian America, which undoubtedly was depicted by all the clay artists on the anthropomorphous huacas idols." Syphilis, of course, may have influenced the excessive phagedenism of those other mixed diseases, which we know as a *con-*

dition under the name of Uta, and it was that awful *condition,* which those artists have moulded in clay.

We must all believe that this "disease," very common, which first and always rooted itself in the face and feet, indicated to the surgeons of that time, or to the surgical sense of every individual, for they must have all known how to cut their own members off, the intervention of surgery as a means of relief under certain circumstances of its march, and such a disease if it had first rooted itself in the genital organs would have not been so universally represented on the face or feet (by amputation), but we should have had other representations to the genital regions in some of the clay vessels, besides only the snake wrapped around the individual's neck, while the snake's mouth ate off the virile member of the man. This showed merely that this disease was pre-Columbian and that the organ was eaten off by some evil being to which they would appeal in their religious medical rites. The picture is symbolical of syphilis, nothing else. The other bad effects of syphilis must have been included in the disease pictures represented on the huacas.

A disease of such nature exists in certain regions, hot and unhealthy, and very appropriate for the culture of coca. Mosquitoes abound there. Diego de Morales says, that these places are sickly and there is no old man nor old woman, and the children, except very few, have nearly all of them llagas "from mosquitoes."

Fernando de Santillan says, of the coca fields, that the climate kills infinite numbers and others die from the evil they call "Mal de los Andes," which is like cancer, that in two days there is no remedy, and others of hunger and work, and he speaks of it as a sepulchre.

Rodrigo de Loaizas says, "The trouble of the Indians who enter into the coca benefits, is that they contract a disease they call 'Andeongo,' like that of the mountains, which affects the noses and produces in them maggots, by the nasty hot and very humid climate which disposes to corruption."

Pedro Pizarro, in 1571, speaking of when Amagro was in Cuzco preparing his way in Lima against Marquez don Francisco Pizarro, says: "There are towns of Indians so few that they do not reach to 200 Indians; towns down to to-day have been seen. These Indians understand to cultivate the herb, coca, for the lords. It is so profitable that they traded each year more than 600,000 pesos. And, please to God, they are not poor in their spirits, because, according to what is said, those who enter in the Andes are given an evil in the noses of kind of evil of Saint Anthony, which has no cure, that in these tradings they die although there are some remedies to allay the pain, but in the end it kills them. All the Indians who enter are given the disease, and even those who are born there are touched by this evil and from this cause they are so few. In this land of the Andes are bred many vipers."

Dr. Cosme Bueno says, of Cauta: "The places are very diseased, there being noticed two kinds of evils, as are observed in other cold provinces. The first is verrugas, which is not breeding; in time only perilous and troublesome. The other is some corrosive llagas, especial to the face, of most difficult cura-

tion as appears on some. They say that it has its origin in the bite of a little insect which they call "Uta."

Dr. Lavoreria says (in his thesis "The Art of Curing among Ancient Peruvians"): In these works we have found mentioned this disease, at least by the indigenous name, but in our opinion it is Uta, the terrible disease which historians call "Mal de los Andes," which commonly attacked the Indians who cultivate the coca for the Inca. The lands where they cultivate it are reputed to be unhealthy, not only by the hot and humid climate, but especially, says Santillan, by its reigning in them, that terrible disease Mal de los Andes which is a kind of cancer (taking the word cancer in the sense which the historians have taken it, that is to say, as synonymous with gangrene or corrosive ulcer) and in precisely the broken land places in which to-day is endemic Uta, and by these motives we must believe that it is Mal de los Andes.

Dr. Palma says, that Uta according to the studies which he has made differs immensely from the features the chroniclers consider under the name Mal de los Andes. He does not know, however, whether that disease reigns in the places where it dominates. He believes according to the description of Raimondi and Barailler, that the Mal is identical with it, so far as its ravages are characteristic in the assignment, and by the similarity in the places of the mountains where they cultivate the coca and which the chroniclers call Andes, and the regions where is endemic *la llaga,* which the cited authors speak of under this name of "Llaga," and with that of "Uta" are designated to-day diseases of the skin more or less alike, but indiscribably distinct in origin.

"Nobody can affirm with scientific vigorousness," says Palma, "the nature of the divers dermatological affections which abound among the natives of the forests of our country, and the only thing that we can clearly deduce, by the references and by what we see in patients who come from those places, is that there it is very easy for ulcerations of different nature to present in a short while of their evolution an aspect very distinct from what was found originally, and in consequence the establishment of a terrible phagedenism, which makes the lesion most destructive, aggravating considerably the prognostic." Dr. Palma thinks Uta, a benign affection, which yields readily to treatment, even by the Indians, and without requiring surgical intervention. "Founded on this, we are," he says, "of distinct contrary opinion to Dr. Ashmead when he thinks that the mutilations of the huacas represent the effects of surgical treatment for Uta,[1] since the *curanderos* of ancient Peru know and apply not only *piedra de los lipes,* the *Nuñocta, etc.,* and that really our natives make use of these for treating successfully Uta. Besides which they surely have in their rich therapeutics a thousand other recourses to conjure the evil without the necessity of assistance by cruel surgical treatments which the affection does not require, and to which the patients would not have submitted easily, know-

1 I never claimed that all the mutilations of face represented surgical intervention, only those of the face with clean cut edges, circular or triangular, like Von den Stienen sent me a photograph of. As to the triple mutilation huacas, of nose, upper lip and feet, I claimed surgical treatment only of the foot lesion.

ing that they could get well by medications less energetic and vigorous. We cannot say any more of those extensive and profound ulcerations that the patients show us that lately have come from the mountains. If the *Andeongo* or *Anti-onco,* Mal de los Andes, was, which appears very probable, an affection characterized by the presence of these rebellious ulcers, with truly devastating tendencies, it is perfectly admissible that the surgeons of ancient Peru interfered radically to extirpate by means of the knife the parts attacked and that the mutilated anthropomorphous huacos, which the potters of that time have left us, are representations of surgical treatment for that disease."

Dr. Palma thinks that the mild Uta, is transmitted by a mosquito which gets the pathogenic germ from the dead body of certain reptiles. The anthropomorphous huacas, represent, he says, probably the effects of surgical curation for Anti-onco (Mal de los Andes, that is, or "Uta," as it is called of the coca regions). "A rose by any other name would smell as sweet," whether it is "Mal de los Andes" or "Uta," what signifies that. He admits the surgical intervention! . . .

Dr. Julio C. Tello in his work (La Antiquedad de la Sifilis en el Peru) believes that the disease "Taqui-onco" or "Cara-onco" (face-onco), the disease of the dance, was really syphilis. He quotes Professor Fournier (Traité de la Syphilis, 1906) who says, that in 4,400 cases of tertiary syphilis he had observed 229 times lesions of the nasal skeleton. Well, and what would that prove in the case of the surgical cures of the disease represented on the huacas potteries? This has no importance to the question involved in the triple mutilation represented on the huacas pots.

Surely tertiary syphilis forms would have been a godsend to those admirable master potters of old Peru and the lesions would not have been limited to nose and upper lip and feet, there would have been more than the triple mutilations represented, and amputations alone would not have cured syphilitic phagedena.

I have made a most thorough analysis of all the recent Peruvian works, which have been so kindly sent me by their authors, viz: "La Uta del Peru," by Dr. Ricardo Palma; "La Uta en el Peru," by Dr. Manuel O. Tomayo; "Algunas Consideraciones sobre la Monografia La Uta en el Peru," por el Dr. Manuel O. Tomayo, Delegado de la Sociedad Geografica de Lima, y de la Universidad de Arequipa, ante el IV Congress Cientifico Latino-Americano de Santiago de Chile," por Ricardo Palma y Julio C. Tello, Alumnos de la Facultad de Medicina; and "La Antiquidad de la Sifilis en el Peru," por Jules C. Tello, Lima, 1909, and I conclude that "Uta" or the condition of corrosive ulceration and nothing else was meant to be represented on the huacas by the ancient potters of old Peru, and that in the mutilation vocabulary under the definition of the Aymaran word "Uta" must be included all those diseases which have as main characteristic phagedenism, this would include also syphilis in complication with any or all of these other indigenous diseases.

FRACTURES OF THE PATELLA AND THEIR MODERN OPERATIVE TREATMENT.

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The patella is the largest sesamoid bone in the body. It is developed and embedded in the substance of the largest and most powerful muscle group in the body, the quadriceps extensor femoris muscle, and forms a part of the extensor apparatus of the knee. The patella is an important factor in the distribution over a considerable area, of any force applied to the front of the knee. It provides considerable leverage for the quadriceps muscle, and its removal is followed by a weakening and an impairment of the action of the quadriceps extensor tendon upon the leg. By this sesamoid bone, the tendon of the quadriceps is kept spread out, and prevented from being gathered up in a round cord. Any portion of the patella, base, body, apex, and borders, may be the seat of fracture. Fractures of this bone are almost invariably intra-articular, that is, the line of fracture almost always extends into the knee-joint, thereby involving the largest and most complex synovial cavity of the body. This fact is important from the symptomatic, therapeutic, and prognostic standpoints.

Fractures of the patella possess the characteristics common to all fractures. They may be subcutaneous; they may be open; may be complete or incomplete; may be unilateral or bilateral. The right and left patella seem to be each involved with about equal frequency. If the fracture be bilateral, both bones may be fractured simultaneously, or in succession, that is, an interval of time of greater or less duration intervening between the two distinct fractures.

Fractures of the patella may be simple, may be complicated by significant injuries of the neighboring structures or tissues. In forty-eight out of fifty-five cases reported by Boeckenheimer,[1] an injury of the accessory patellar ligaments, or reserve extensor apparatus, was present. These fractures may be recent, may be old. We will consider, somewhat arbitrarily, we acknowledge, as old fractures, all those that are of more than two months' standing.

From the operative and from the prognostic standpoints, the determination of these different types of fractures is of great importance. For instance, in old fractures, the fractured surfaces must be freshened and the interfragmentary fibrous band resected. Compound fractures call for immediate operation. Comminuted fractures may call for removal from the articular cavity, of detached bony fragments.

Fractures of the knee-cap may be due to violence, direct or indirect, or to muscular action. It is not uncommon for two or all of these factors to be associated in the production of the injury. All the compound fractures that

have come under our observation, or that we have found reported in the literature, were due to direct violence; a blow, a fall, a kick, etc., upon the knee-cap. If direct violence be the causative factor, the greater the violence, the greater the likelihood of stellation, or comminution of the bone.

Some clinicians classify fractures of this bone into (a) blow fractures, (b) tear fractures, and (c) such as are due to a combination of both factors, impact or traction. From an etiological standpoint, this classification is of value, but it cannot be utilized as a constant guide to determine whether operative or non-operative treatment is indicated. In the tear fractures, the lateral expansions of the quadriceps extensor muscle on either side of the patella are torn, and, almost always, there is considerable separation of the fragments of the fractured bone. Tear fractures have been reported in which separation (detectable by inspection and palpation) of the fragments was not present.[2] Such cases are of very exceptional occurrence. Blow fractures have been reported in which marked separation of the fragments was found to be present.

We find reported such statements of the circumstances surrounding the accident as the following: While making an effort to regain his balance, to restrain himself from falling, the patient fractured his patella. In a case reported by Hamilton,[3] it is stated that the patient slipped in a room, then fell in a sitting position; a fracture resulted. Mayer's[4a] patient, in falling upon her back, heard a cracking sound in right knee. Eisendrath's patient,[4b] an intoxicated individual, fell down ten or twelve steps backward. In Bullett's case,[5] both patellæ snapped, as patient was endeavoring not to fall. Wright's[6] patient fell, and in attempting to regain his balance, felt something crack in his knee. Durand's[7] patient ran into an obstacle, and, in falling backward, fractured his patella. Means'[8] patient refractured his patella while lifting a heavy load. In a case reported by Wright,[9] it is distinctly stated that the patient heard a crack in her right knee before hitting the steps upon which she fell. In another of Wright's cases patient lost his balance and fell backward while sparring.

In 447 cases, in which the sex of the patient is stated, 388 of these fractures occurred in males, and 59 in females.

Fractures of the patella are infrequent in childhood and in adolescence.

In the literature of fractured patella of the last ten years, the youngest patient in whom this accident occurred, was a male, ten years old. His fracture was compound. He recovered only limited motion.[10] One of Bogart's[11] cases was a girl, 14 years old. Her fracture was also compound. Cox's case,[12] a compound fracture, was a boy 15 years old. The oldest patient reported was 83 years of age.[13] In Vallas' case,[14] the patient was 70 years old. Trendelenburg[14] reports a case occurring in an individual 71 years of age. One of Lotheisen's patients[15] was 73 years old.

The line of fracture may be longitudinal, oblique, transverse, stellated. Comminution is not infrequent. Avulsion of tip and of margin of base is reported.[16] The part torn off may be the lower half-inch of the apex patellæ.[17] Meyer[18] reports some longitudinal fractures, the diagnosis of which

was verified by the Roentgen rays; some were due to direct violence, others to indirect violence.

The fragments may be equal (rare) or unequal in volume.

The bone may be broken into two, three, four or more fragments. In cases reported by McWilliams,[19c] by Battle[19b] and by Doberauer,[19a] there were five fragments. In cases reported by Erdman,[20a] and by Fells,[20b] six fragments were present. Dumstrey,[21b] Cassedebat[21c] and Ranzi[21a] report cases each presenting seven fragments. In Modlin's case,[22] the bone had been fractured into nine fragments.

Associated with all fractures of the patella, hæmorrhage, both intra-articular and extra-articular, is present. The intra-articular hæmorrhage is of symptomatic and of prognostic significance. The prepatellar bursa may be the seat of a hæmorrhagic extravasate. This more frequently occurs in the fractures due to direct violence.

Owing to the fact that the elasticity of the soft tissues exceeds the cohesion of the bone, in tear fractures (those that are due to the overaction of the quadriceps extensor muscle or to the exaggerated traction of the ligamentum patellæ), the soft tissues do not yield at the same level as the bone. The bony fragments may be separated as much as two centimeters before rupture of the overlying soft tissues occurs. (The tear in the prepatellar fibrous tissues may be above, or may be below the line of fracture.) These soft tissues may overlap, partially, or completely, one or both fractured surfaces. This fibroperiosteal curtain is not present in those cases (they are few in number) of fractures of the patella in which there has not occurred a coincident rupture of the prepatellar ligamentous and fibrous tissue.

Lucas Championnière,[23] in reporting seventy cases, says that in a large proportion of them, a large flap of fibrous tissue coming from the anterior surface of the patella, was interposed between the fragments. Baerlocher,[24] in reporting twenty-eight cases, says that in every one of his cases, it was seen at the time of operation that the fractured surfaces were covered by interposing soft parts, which, had subcutaneous suture or non-operative treatment been employed, would have prevented osseous union.

In complete fractures of the patella, the separation existing between the fragments may be slight, may be marked. It is always increased by flexion of the leg on the thigh. The capsular tears, the lacerations of the reserve extensor apparatus, play an important rôle in this fragmentary diastasis. In one of Fowler's cases,[25] the inter-fragmentary space was two and one-half inches in width. In Ball's case,[26] the fragments were four inches apart.

Another symptom frequently noted is loss of the power of extending the leg on the thigh. We find in the reported cases such expressions as "Limb useless;" "Functional disturbance similar to that of paralysis of quadriceps extensor muscle;" "Power to extend the knee was absent;" "Absolute loss of function;" "Absolute impotency of limb;" "Impossible to extend lower limb;" There was immediate disability;" "There was absolute extensor paralysis," etc., etc.

The patella is not uncommonly the seat of refracture. This accident is

more frequent in the first few months following the original accident. It may occur later, especially when flexion has remained limited. Among the causes of refracture may be mentioned:—

1. Situation of the patella over a functionally active joint.

2. Atrophic condition of the bone.

3. Adhesion, as a sequel of the previous fracture, of the patella to the femur.

4. Forcible flexion of the knee, as by a fall, beyond the range of motion that has been acquired. It has occasionally been caused by the surgeon in an attempt to forcibly increase by passive motion, the flexibility of the knee.[27]

Either the bone itself, or the fibrous union, may be severed, that is, the fracture may be above the bond of union, may be below the bond of union, may be through the bond of union. Refractures are frequently indirect fractures, in which the extensor apparatus yields at its weakest point between the fragments, that is, at the ligamentous bond of union.

The patella may be twice refractured.[20a]

Pilcher[28] presented to the Brooklyn Surgical Society, cases of fractured patellæ that had been treated operatively with success. At the same time, he showed some skiagrams. One of the latter demonstrated a patella with two different healed fractures. In this patella, the fractures were at different sites. In Turner's case,[29] at the time of operation, it was seen that the refracture was at the same place as the previous fracture.

In fractures of the patella, the following indications have to be met:—

1. The fracture must be reduced.

2. The bony fragments must be maintained in intimate apposition until organic union between them has been effected.

3. The continuity of the divided soft tissues must be re-established.

4. The functional integrity of the knee-joint must be restored.

The value of any form of treatment is dependent upon its ability to meet the above indications. All forms of treatment can be classified into one or the other of two main classes: The non-operative and the operative. The latter admits of further subdivision into the subcutaneous and open methods.

It is evident that in each individual case, the adoption or rejection of any form of treatment is to be determined largely by the nature, the type of fracture at hand. Each method has advantages and disadvantages; indications and limitations.

The numerous non-operative methods of treatment that have been employed; the large number of percutaneous and subcutaneous operations for approximation of the fragments, that have been proposed, lauded, tried, and then abandoned; the comparatively great number of patients, who, having been subjected to non-operative treatment, of themselves seek operative treatment in order to lessen or entirely overcome their disability, all these are proofs that all the non-operative, and the subcutaneous operative methods as well, have deficiencies which debar them from ever being elective methods of treatment.

Occasional cases are to be found in the literature of the subject, in which

though the operator succeeded in restoring to the patella its normal anatomical contour, functional integrity of the knee-joint was not secured. Our explanation for these cases is that some essential step in the operation has either been completely overlooked, or unskilfully performed, or that the post-operative treatment has been injudicious. The extravasated blood may not have been removed from the synovial cavity; the lacerations of the soft tissue may not have been repaired, etc.

A distinction must be made between the shortcomings of the operator and the shortcomings of an operative procedure, as such.

Why do we advise the abandonment of the various subcutaneous and percutaneous operations? Because:—

1. They do not enable the surgeon to accurately coapt the fractured fragments. After an arthrotomy, either by bone suturing, by circumferential looping or ligaturing, or by careful sewing of the torn soft tissues, the fragments can be closely apposed and held immovably together. This intimate apposition of the fractured surfaces lessens the liability to an excess either in length or in width, of callus formation. Any change in the contour of the patella is liable to interfere with the normal adaptation of its articular surface to the femoral articular surface.

2. They do not enable the operator to freshen the fractured surfaces. In the repair of old fractures, the resection of the inter-fragmentary fibrous bond of union, the freshening of the fractured surfaces, are among the essential steps of the operation.

3. They do not insure against union of the bony fragments in a faulty position. Impaired function results from union in a faulty position. The open operation enables the surgeon to overcome any tilting of the fragments, as well as any tendency to union in faulty position.

4. The subcutaneous methods make no provision for the toilet of the synovial cavity. The open operation allows of the early and complete removal of all articular effusions, of all extravasated blood, intra- or extra-articular, liquid or clotted, of all completely detached bony fragments.

5. The tears in the capsule, the lacerations in the aponeurotic expansions of the vasti, demand repair. Only by means of an open operation can they be repaired. The extensor apparatus of the leg must be considered as one organ. Structural impairment of any of its constituent parts entails a corresponding impairment of function. The insertion of the vastus externus and of the vastus internus into the capsule of the knee-joint, and the lateral prolongations of their insertions down upon the head of the tibia and fibula, are of assistance in the extension of the leg on the thigh. Solutions of continuity in these tissues must be repaired.

6. None of the subcutaneous operations allow of the removal of the fibro-periosteal shreds which so frequently overlap the fractured surfaces, and which, in some cases, have been found to adhere so tightly to bony projections, that for their liberation it was necessary to use forceps and curette. These fibroperiosteal shreds are an obstacle to osseous union; they can be removed only by an open operation.

7. The subcutaneous and percutaneous operations create openings which are inadequate for the escape of intra-articular and extra-articular extravasates and exudates, but which are ample for the introduction of infection.

The probability of ankylosis, joint suppuration, or pyæmia, following an aseptic arthrotomy, can almost be disregarded. In none of Moullin's[30] cases was there a rise of temperature worth mentioning. Stimson[31] between the years 1892-1906, performed the open operation for fractured patellæ over two hundred times. During this entire period, his only mishap was a slight suppuration, which caused no subsequent difficulty. We concede that the general dangers inherent to other major operative procedures are also present in these cases. These dangers, anæsthesia, shock, and suppuration, are common to all operations. Shock can be minimized by rapid operating. The time consumed in the performance of any operation should be the shortest consistent with the careful and complete execution of the different steps of the operation. We will not, at this time, discuss the other two dangers.

We believe we are fully justified in stating that the dangers of the open operation, if it be performed with due precaution by careful and skilful hands, are practically *nil*. There is always plenty of time to reach hands well able to perform the operation.

What are some of the advantages of the open operative method?

1. Refracture of the patella is more common after massage and other forms of non-operative treatment than after the open operative treatment. Allessandri,[32a] Gibbon.[32b] Refracture is more frequent in the patella than in any other bone, Lauper.[32d] By more closely restoring the bone to anatomical perfection, the open operative treatment lessens to a considerable degree the tendency to refracture.

2. In any fracture, the union between the fractured fragments which is considered the most desirable, is osseous union. Modern surgeons do not expect to obtain osseous union in fractures of the patella which are treated non-operatively. Its occurrence under such conditions, though possible, is so rare that it is considered a pathological curiosity. One of the main justifications of the open operative treatment is the frequency with which osseous union follows its employment.

It being a demonstrated fact that osseous union can be obtained, it behooves us to employ that method of treatment which most frequently secures it.

It cannot be contested that the solidity of the patella contributes, in a great measure, to the stability of the knee-joint. Fibrous union of the fractured bone imparts to the articulation a weakness, an uncertainty, an instability, as a result of which patients with fibrously united patella, frequently fall. This lack of stability, this impairment of control, predispose to refracture of the fibrously united patella. It is exceptional for fibrous union to be associated with absolute functional recovery. Patients with fibrous union are handicapped noticeably in going up or down stairs. A fibrous bond of union has a tendency to elongate under use.

3. The open operations enable us to obtain a more rapid, a more complete

recovery. Koerte considers that the climbing of stairs after fracture of the patella is a criterion of functional recovery.

4. The open operation enables the operator to mitigate all, and to remove most of the conditions that tend to cause imperfect union and its consequence, impaired functional integrity. Let us enumerate and discuss briefly the most important of these unfavorable conditions to osseous union.

1. Separation of the fragments.
2. Tilting of the fragments. Either or both fragments, often are or may be, everted or inverted. In the presence of tilting the fragments can never be maintained with the fractured surfaces exactly towards each other, either by bandages or by mechanical appliances, or by any subcutaneous operative method.
3. Rupture of the tendinous expansions of the vasti and of the lateral portions of the capsule of the joint.
4. Prolapse of the prepatellar tissues into the breach caused by the separation of the fractured fragments.
5. Atrophy of the quadriceps femoris, due to pain, anchylosis, marked contusions of the muscle, extravasated blood from the joint, through the rent in the upper part of the capsule, etc.
6. Arthritis of the knee-joint.
7. Adhesions of the patella. Hamilton and Erman report cases in which the upper fragment was found adherent to the femoral condyles.
8. Union of the fragments in bad position, mechanically interfering with proper function of joint.

The inter-fragmentary interval, in recent fractures, can be increased by flexion of the leg on the thigh, and lessened by extension of the thigh and leg on the pelvis. The displacement varies with the type of fracture, being practically non-existent in incomplete subperiosteal fractures, being most marked in such cases as are associated with extensive laceration of the prepatellar and parapatellar fibrous and aponeurotic tissues. A group of powerful muscles is attached to the upper fragment, and in oblique and in transverse fractures displaces this fragment upwards. This muscular group, the quadriceps extensor femoris muscle, must be properly controlled, as it constantly tends to separate the fragments. The retraction of the ligamentum patellæ displaces the lower fragment downwards, and also has a tendency to evert the fractured surface. The upward displacement of the upper fragment by the quadriceps extensor femoris muscle, of itself, would not make the open operation imperative, as the contraction of this muscle and the associated displacement of the upper fragment can be greatly overcome by position; by clamps; by forcible and prolonged extension; by the subcutaneous and percutaneous methods of vertical or circumferential ligating of the patella. The open method enables one to determine the extent to which the fragments are separated, and to take such steps as may be needed to overcome this tendency. The surgeon is enabled to bring the fragments into more exact apposition, and to more positively maintain them there. By the open method, sutures to

length of the patella is avoided. Increase in the dimensions of the patella is not infrequently noticed after the subcutaneous operations, and sometimes appears to limit mechanically, flexion of the knee.

One or both fragments may be everted or inverted, or one may be everted and the other inverted. If the bone be fractured into more than two fragments, one or more of the fragments may be everted or inverted. Tilting of the fragments, though partly due to the traction of the fibroaponeurotic tissues attached to the anterior surface of the patella, is mainly dependent, at first, on the intra-articular hæmorrhage, and later, on the inflammatory exudate consecutive to the injury. As these fractures are almost always intra-articular, an associated traumatic synovitis is a nearly constant accompaniment. At times, a spicule of bone between the fragments is a contributory factor. The tilting of the fragments decreases, often disappears completely, with the absorption, or with the removal of the extravasated blood, and of the inflammatory exudate. By keeping the limb in an appropriate position, by controlling the fragments by elastic or other bandages, so applied as to secure apposition of the fractured surfaces, tilting is further lessened. The open operation enables us to quickly and completely remove the extravasated intra-articular and extra-articular blood, to void the inflammatory exudate, to make the toilet of the synovial cavity.

In fractures of the patella, as in other fractures, in addition to the lesion of the bone, we have co-existing injuries of the contiguous soft tissues.

When one recalls the intimate relations with the patella, of the fascia, muscles and ligaments which surround it, no stretch of the imagination can possibly conceive a fracture of this bone without some associated damage to the surrounding structures. The more extensive that damage the greater the separation of the bone fragments, the less the liability to spontaneous functional recovery. Vallas, Mikulicz, Baerlocher, Lejars, and Stimson emphasize the importance of restoring the continuity of the torn reserve extensor apparatus.

Upon the proper repair, upon the proper reunion of these soft tissues, is dependent, in an important measure, the functional integrity of the knee-joint. E. W. Andrews says that the patella union is only an incident in the ligamentous and tendinous repair by suture. So important is the approximation of these torn tissues, so essential is the restoration of the continuity of the aponeurotic fibers of the vasti, of the rectus femoris, and of the deep fascia of leg and thigh, that many operators, in the treatment of fractured patellæ, limit all their suturing to the torn soft tissues. It has recently been shown that, in operating upon these fractures, it is even more important to suture the lateral ligaments than to suture the patella itself. The tears in the joint capsule and in the aponeurotic fibers, allow the quadriceps extensor femoris muscle to still further separate the fragments, and to increase the forward eversion of the superior fragment. The open method enables the medical attendant to carefully repair the tears, anterior and lateral, in the joint capsule (the patella forms a part of the articular capsule), and to approximate the margins of all lacerations in the tendinous expansions of the

vasti. The active extension of the leg depends in a large measure upon the state of the reserve extensor apparatus.

The prolapse of the prepatellar fibrous tissues between the fragments of the fractured bone is one of the important obstacles to non-union. The prevention by these intervening soft tissues of the exact apposition of the fragments is one of the most valid reasons for resorting to the open operation. When present, these interposed soft tissues constitute an obstacle to osseous union, removable only by the open operation.

These interposed soft tissues constitute a fibroperiosteal curtain which may overlap the fractured surface of either fragment. In some cases, both fractured surfaces are either partly or completely covered by this prolapsing prepatellar tissue. These prolapsed tissues may be easily removable, may be hooked to the underlying bone. When hooked to the fractured surfaces their removal is, at times, attended with some difficulty. In many fractures of the patella, be they tear or blow fractures, or due to both factors, the prepatellar bursa is contused. Blood and portions of the prepatellar bursa can enter into the formation of the prolapsed prepatellar curtain, being superimposed upon the aponeurotic tissues.

By the aid of the open operation, all inter-fragmentary soft tissues are easily removable. Bony union presupposes an exact apposition of two osseous surfaces. Blood interposed between the fragments, we do not consider as a foreign body, it being known that the presence of blood is constant between fractured surfaces. Intervening tissues of other description act as foreign bodies and are productive either of fibrous union or of non-union. We concede that massage relieves pain, promotes the circulation, and aids in the removal of exudates, but can it accomplish anything towards the removal of the soft tissues that have prolapsed in the breach between the fragments? The attempt to remove the inter-fragmentary soft tissues by rubbing the fractured surfaces one upon the other is illusory. Interposed soft tissues can be removed with certainty only by means of the open operation.

The atrophy of the quadriceps femoris muscle found in these cases is due, partly to disuse, partly to extravasation of blood in the substance of the muscle, partly to associated injury to the muscle and to its contained nerve filaments. By the aid of the open operation, all blood extravasates can be removed, fascial tears sutured.

The patients regain the use of their limbs in a comparatively short period of time, the period of immobilization is markedly shortened. Active use prevents and overcomes atrophy, attendant upon disuse. Atrophy of the quadriceps extensor femoris was recorded in the cases reported by Rosenberger,[33a] by Straeter,[33b] etc. The early removal of all extravasated blood, liquid or clotted, from the articular cavity and from the periarticular tissues, limits the liability to the formation of adhesions, intra- and extra-articular in nature.

By the employment of the open operative treatment, all the above-mentioned obstacles to restoration of functional integrity can be more rapidly, more effectually overcome than by resorting to non-operative methods of treatment, separate or combined. The open method makes possible the removal

from the joint cavity of detached bony fragments; it enables the operator to absolutely prevent the union of the fragments in a faulty position, that is, in a position mechanically interfering with the proper function of the joint; the tendency to adhesion of the upper patellar fragment to the femoral condyles is lessened. Increase in the dimensions of the patella following the open operative treatment is a rarity. Any increase in the dimensions of the patella is very liable to interfere with the adaptability of the patellar and femoral articular surfaces.

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(Continued in January issue.)

Editorial

MICROSCOPY AND ITS VALUE TO THE MODERN PHYSICIAN.

Magnifying lenses were not in use until about the end of the sixteenth century. It was known before then that letters were enlarged when seen through a globe filled with water, but it was thought that the magnification depended upon the nature of the water, or of the transparent bodies, and not upon the lenticular form of the glass.

The history of the microscope, like that of nations and sciences, has had its brilliant periods, in which it shone with uncommon splendor. Thus, soon after the invention of the microscope, the field it presented for observation was cultivated by men of the first rank of science, who enriched almost every branch of natural history by the discoveries they made by means of this instrument.

When the microscope was first invented it was regarded as a mere accessory, a plaything, an unnecessary addition and an imposition upon the medical profession, and upon the public in general. However, now, it is regarded as an extreme necessity, especially in minute examinations and investigations, also in the advancement of every branch of science and art.

When the microscope first made its appearance, the public considered minute organisms too despicable to demand notice, but, however, these same individuals were highly perplexed at the stupendous destruction which visited their crops and destroyed them. However, the microscope beheld the cause of the destruction in a tiny fungus, whose rapid propagation and multiplication wrought havoc.

The microscope has now been perfected to such a degree that it is possible to see the minutest bacilli, and has thus led to important results in the treatment of disease. A physician without a microscope is like a man without eyes. He is uncertain and unprotected, and must be considered incompetent simply because he is unable, without the aid of the microscope, to arrive at a correct diagnosis. If a man persists in the ways of former days, using the implements, practicing the technic, persisting in the habits that characterized generations of the past, he is considered a back number.

It is a striking truth, that few of the great phenomena of nature are produced by great and visible causes, and so it is in medicine. We believe that the microscopic life which teems in the ocean, the land, and the air, plays the highest and most important part in the economy of creation.

Its value in the physician's office cannot be overestimated in the examination of sputa of our patients, and thus being able to say positively whether the man is suffering from tuberculosis, pneumonia, streptococcic or staphylococcic infection. How important it is to be able to state with certainty, and at an early date, whether or not the patient is suffering from cancer of the stomach, by examining the vomitus microscopically. The diagnosis and imme-

diate recognition of diphtheria is made possible from a smear preparation of the exudate, and thus distinguish the Klebs-Löffler bacilli, through the aid of the microscope. Upon the microscope often depends the diagnosis of typhoid fever, by means of the Widal reaction. In many cases the absolute diagnosis of gonorrhœa depends upon a microscopic examination of the discharges, which is very important from a medico-legal point of view.

It is often impossible for the surgeon to make a positive diagnosis, in cases in which malignancy is suspected, of the growth removed by the operation, without the aid of the microscope. The microscope has led to the development of the germ theory, the discovery of antitoxin, and the greatest boon to mankind—the realization of aseptic surgery, and reveals with ease the method of spreading disease. It follows up the ravages of disease, and the many abstruse and morbid phenomena of life and death.

Much has already been written of late years concerning the microscopic application in a medico-legal sense. Everything that concerns medical examinations in a legal sense, can be facilitated, and occasionally determined, by the use of the microscope. It can be applied particularly in malpractice suits, suits of damages, and especially those cases which depend upon the detection of any adulteration of food or drink. In the author's experience, there is an instance on record where a man was found dead and covered with blood. Nothing was found about the dead man except an axe covered with blood, and some hairs. It was now thought that a clue was obtained leading to the discovery of the murderer, and the hatchet was submitted to microscopic examination. The report proved that the hair found was that of an animal, and not of a man. This was also confirmed by the events of the trial, and the evidence fell to the ground. To the microscope this person was not only indebted for the declaration of his innocence, but also the preservation of his life.

Materia Medica and Therapeutics

OSTEOTOMY OF THE CUNEIFORM FOR HALLUS VALGUS.

Dr. R. Reidl, Linz, describes a new procedure in the treatment of hallus valgus. He states that a longitudinal incision is made over the inner border of the foot, so as to expose the internal border of the cuneiform and corresponding tarso-metatarsal articulation. A wedge with base outward is cut out of the cuneiform and the base of the metatarsal is sufficiently liberated to make it mobile. The bone is then forced from its position of adduction into normal, parallel relations. Redressment of the big toe follows, and after suture of the wound, a plaster of Paris dressing is applied, the author advises the wearing of a cast until bony union has occurred. The skiagrams taken several months after operation show an ideal result. (Archiv. für klinische Chirurgie, 1909, Vol. 88, No. 2.)

PURULENT PERITONITIS, TREATMENT OF.

Dr. N. Gulcke summarizes the principles in the treatment of this disease. Small incisions, especially in peritonitis

following appendicitis, general anæsthesia; search for the cause of the suppurative process and its removal if possible (extirpation of the appendix, suture of the perforation, etc); avoidance of eventration of the intestines whenever possible or their rapid replacement; suture of the wound; no irrigation with saline solutions, but during the first two days abundant subcutaneous infusion, two to four quarts daily, also rectal injections of hot saline solution; removal of the drains on the third day; in peritonitis resulting from appendicitis introduction of the drain into the Douglas pouch and a counter-incision, usually on the left side, with insertion of another drain into the pouch. Among the thirty-three cases, comprising various forms of peritonitis, recovery took place in twenty, 60.6 per cent. The greatest mortality was in perforation peritonitis, all the patients dying; the least in peritonitis due to appendicitis, 75 per cent of cures. From the statistics Guleke concludes that over one-half of such cases can be saved by prompt intervention. (Beiträge z. klin. Chir., Bd. 60.)

RUBBER ELASTIC BANDS FOR DRAINAGE.

Dr. E. Stanley Ryerson has found the ordinary elastic band a convenient means of carrying out the principles of wound drainage. The discharge was found to run up between the approximated surface of the two layers of rubber, as well as between the outer surface of the band and the surrounding wall of the sinus. The bands can be easily introduced and removed without causing pain. The flexibility of the bands allows the cavity to collapse and thus hastens the healing process. The size to be used will depend upon the depth and capacity of the cavity, the length of the wound into the cavity, and the amount of discharge from it. They can be sterilized by boiling and kept ready for use in bichloride solution. To prevent them from slipping into the wound the outside is left long, or a small strip of dressing is passed through the outer loop, or a safety pin. (Can. Lancet, July, 1909.)

SCAPULOPEXY IN MYOPATHY.

Dr. Panchet recommends operative treatment for this disease as it serves to re-establish a relative functional capacity and ability to work. Scapulopexy was successfully performed in a case of juvenile muscular dystrophy (Erbs type), in which the shoulder muscles of both sides were involved in the atrophy, both shoulders presenting distinct flail-joints. Surgical interference was resorted to on the basis of the reflection that under manual fixation of the scapula—which projected under the fashion of a wing—the arm could be raised to the horizontal plane, and the hand be placed upon the head. The insertion of the first to ninth rib was exposed by a longitudinal incision two fingers' width away from the spinous process and parallel with these; the inner margin of the scapula was freshened, and so were the corresponding points of the ribs. A number of holes were bored through the scapula, and wires were pulled through, twisted around the rib, and fastened in place. The outcome, after bony union had occurred, was excellent, as had been anticipated, the scapula occupied its normal anatomic level, and the arm could be raised to the horizontal plane. The results obtained by the interference were especially well illustrated by comparison with the side which had not been operated upon. (Bull. et mem. de la Soc. de Chir. de Paris, I, XXXIV.)

SODIUM CHLORIDE IN INTERNAL HEMORRHAGE.

Dr. R. von den Velden shows that chlorides and also the bromides have a pronounced hæmostyptic effect, this action being probably due to the withdrawal of water from the tissues, with mobilization of a component of the coagulative process (thrombokinasis.)

The dose given by mouth in the author's prescriptions never exceeds 5 Gm., which suffices to induce, within a few minutes, an increase of the coagulative power of the blood, lasting from one hour to an hour and a half. In a case of delicate stomach, or when an especially rapid and strong effect is desired 3-5 centimeter of a sterile common salt solution (10 per cent.) may be injected into a vein of the arm. (Deutsche med. Wochenschrift, XXXV, 1909.)

SUPPURATION OF THE ACCESSORY SINUSES, TREATMENT OF.

Dr. Martens states that the aspiration method, a procedure which has not yet received sufficient consideration, is a very valuable diagnostic aid in suppuration of the accessory nasal sinuses. The pus can be brought out by means of aspiration, especially in the case of the ethmoid cells. A single aspiration will not suffice, however, and when the pus is stringy or scanty a duration of from three to five minutes, and an aspiratory force of from 15 to 25 centimeters, mercury column, are required. The author constructed a pump with a vacuum meter for this purpose, which may be utilized for therapeutic procedures. In the presence of extensive changes in the mucosa and the bone, the aspiration method alone is insufficient; but there are many cases in which it will accomplish the desired object, without necessitating the use of the knife. Among the numerous acute empyemata which recover spontaneously, and the various chronic suppurations which fail to heal without operation, there are many cases of suppuration of the ethmoid cells, the frontal sinus, and the sphenoid sinus, which may be successfully treated by conservative measures in shape of aspiration. (Deutsche Wochenschrift, No. 4, 1909.)

TAMPONING IN THE TREATMENT OF PROLAPSE OF RECTUM.

Dr. P. Sick expatiates on the advantages of tamponing in treatment of prolapse of the rectum. An incision is made between the tip of the coccyx and the circular sphincter fibers, through the superficial fascia into the loose connective tissue behind the rectum. There are no vessels, muscles or nerves to be injured at this point. The rectum is then detached up to the promontory, as for resection, tamponed with a little gauze, and a strip of medicated gauze, folded four or six times is introduced. The incision 2 or 4 centimeters long is closed with plaster or collodion. The tampon is removed as after a nephropexy in one or two weeks, but not until after the second or third week should the patient be allowed to defæcate seated. This technic is especially applicable for children, and he thinks it is much superior to the Ekehorn technic, which he declares is neither simple, harmless, nor promising of permanent results. (Zentralblatt für Chirurgie, Leipsic.)

TREATMENT OF QUINSY.

Dr. D. J. Guthrie reports successful results of his treatment of this affection. In a case which he reports the supratonsillar swelling was opened in the usual way with bistoury and sinus for-

ceps, and a quantity of blood-stained pus evacuated. A tent was erected over the bed, and inhalation of steam with compound tincture of benzoin was given constantly—a measure which afforded the patient much relief—and a calomel purge was administered. Toward evening the swelling had slightly diminished, but swallowing was still impossible and speech thick. Ice was ordered to be sucked at intervals, and instructions given that 2 drams of brandy be administered every three hours as soon as the patient was able to swallow. On the following morning the patient was able to swallow with little difficulty and œdema had diminished. Temperature was 99 degrees; pulse 85. The tonsil of the opposite side was found to be covered with yellowish spots (follicular condition). A throat spray of peroxide of hydrogen was recommended and the steaming discontinued. A mixture containing 5 minims of liquor strychninæ and 15 minims liquor ferri perchloridi to each (B. P.) dose was prescribed. Following this the condition rapidly improved, œdema and swelling diminished and the patient made an uneventful recovery. (Glasgow Medical Journal, September, 1909.)

TUBERCULIN TREATMENT OF PULMONARY TUBERCULOSIS.

Dr. P. K. Pel states that tuberculin is still in the period of trial. He has been unable to acquire much enthusiasm for it. There are so many unaccountable by-effects, such as headache, fever, insomnia, rheumatoid pains, loss of appetite and weight, acceleration of the pulse and general depression, while acute exacerbations or complications of the tuberculous process may be encountered, as also an individual hypersusceptibility to tuberculin. The course of treatment is so long, so complicated, the indications are so restricted and there are so many contra-indications, that he declares the failure to institute tuberculin treatment is not a sin of omission, for the present. The clinics, hospitals and sanatoriums should make a point of comparative and critical study of tuberculin treatment to place it on a solid basis. (Berliner Klinische Wochenschrift, Sept. 20, '09.)

VACCINE IN BRONCHIAL ASTHMA.

Dr. D. W. Carmalt-Jones suggests that one cause of spasmodic dyspnœa in chronic bronchitis is a specific bacterial toxin, the result of a definite infection and amenable to treatment by the corresponding vaccine. In 1907, while making some investigations into the bacteriology of chronic bronchitis, he isolated a certain organism in nearly pure culture from the sputum of a female patient. He took her opsonic index to this, and finding it low, suggested inoculation, to which she agreed. She was given a dose of 25 millions hypodermically, and was instructed to come back in two days. She suffered severely from bronchial asthma. On her return she said that though her cough was no better, her breathing had been much relieved. Carmalt-Jones used the same vaccine extensively among patients suffering from bronchial asthma, in about 70 cases in all, and of these he had collected 52, who gave the experiment a fair trial, that is, who attended for inoculation at least twice. Taking results as a whole, 31 patients have found some degree of improvement in the frequency, and 39 in the severity of their attacks; 26 have improved in their powers of taking exercise, and 29 have slept better. In some cases improvement has been slight and in others temporary. In 4 patients no improvement at all has resulted. (British Medical Journal, October 9th.)

X-RAYS FOR PROSTATIC CONCRETIONS.

Dr. Gosta Forrsell, in *Munch. Med. Woch.*, discusses the use of the X-ray in the diagnosis of concretion of the prostate gland. He made X-ray photographs of eleven cadavers, and then dissected out the glands. Among these there were two with prostatic stones. He also examined one hundred living patients. The author gives details of the exact position in which the patient should be placed in order that the symphysis may not hide the concretions. He intensified his plates. In thirteen of the one hundred clinical cases prostatic stones were found. These were of two types. The first type were found in ten cases and the second in three. In the first type the shadows of the stones appeared as small discrete round dots, varying in size from pinhead to that of a hempseed, arranged symmetrically on both sides of the midline just above the symphysis. The histories showed no etiological factor, the concretions seeming to be normal results of old age. Between the ages of twenty and fifty they occurred in only five per cent. of the cases, while between fifty and ninety-three they were found in twenty per cent. In the second type the shadows occurred as good-sized patches made up of conglomerations of the small ones. These appeared higher up in the pelvis, from 1.5 to 3.0 centimeters, above the symphysis. This type does not seem to be so definitely a senile condition, as it occurs in middle life. It appears to be caused by pathological changes. Forrsell concludes that his researches have demonstrated that the position, arrangement, form and density of prostatic concretions are very characteristic, and that, as a rule, the differentiation from other concretions within the pelvis is possible. Also, that prostatic stones, both normal and pathological, are much more common than previously thought, and that they can be discovered by a careful X-ray examination. (Medical Standard, Sept., 1909.)

Book Reviews

American Illustrated Medical Dictionary. A New and Complete Dictionary of Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, and Kindred Branches; with New and Elaborate Tables and many Handsome Illustrations. The New (Fifth) Revised Edition. By W. A. Newman Dorland, M.D. Large Octavo of 876 Pages, with 2,000 New Terms. Philadelphia and London: W. B. Saunders Company, 1909. Flexible leather, $4.50, net; indexed, $5.00, net.

It would be difficult to mention a more useful book than the "American Illustrated Medical Dictionary." The aim of this book is to furnish full definitions of the terms used in medicine and its allied sciences, and such collateral definitions of the terms of medicine and kindred branches.

The important features of this work are the attractive appearance, convenient size, colored plates, and, above all, the anatomical and clinical tables, as well as elaborate tables on arteries, muscles, nerves, veins, etc.; of bacilli, bacteria, diplococci, micrococci, etc., weights and measures, eponymic table of diseases, operations, signs and symptoms, stains, tests, methods of treatment, etc.

Everything is concise and complete, and is arranged in a shape complete for quick reference. The pronunciations are simple, and easily understood, and the definitions are trustworthy.

The print is excellent, and it will indeed prove an indispensable work of reference.

SURGICAL DIAGNOSIS. By Daniel N. Eisendrath, M.D., Professor of Surgery in the Medical Department of the University of Illinois (College of Physicians and Surgeons). Second Revised Edition. Octavo of 885 Pages, with 574 Original Illustrations, 25 in Colors. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $6.50, net; Half-morocco, $8.00 net.

The study of surgical diagnosis is perhaps the most significant characteristic of medical science to-day. The necessity of making a correct diagnosis before instituting treatment, is the great aim of the author throughout this volume. Every affection is described, step by step, and renders the diagnosis easy by grouping the various injuries and diseases in the manner in which the surgeon or general practitioner must consider them when he examines a patient for the purpose of making a correct diagnosis.

The exposition is clear and lucid, and the writer has taken pains to give tabulated differential diagnostic tables to differentiate those affections which simulate each other.

The volume is divided into eight chapters: Chapter I, Surgical Affections of the Head; II, Surgical Affections of the Neck; III, Thorax; IV, Abdomen; V, The Extremities; VI, Diseases and Injuries of the Spine; VII, Postoperative Complications; VIII, Methods of Examination.

In the text, the descriptions of the various conditions are described according to the particular case; general statements being avoided. Every description is complete in itself. Especially noteworthy are the chapters on "Cerebral Localization," "Cystoscopy and Ureteral Catheterization," "Abdominal Tumors," Acute Abdominal Affections," "Hernia," etc.

The author proves himself to be an able diagnostician. This work is profusely illustrated, containing 574 original illustrations, 25 of them in colors, and every one of them show every detail that the author endeavors to bring out.

A TEXT-BOOK OF OBSTETRICS: Including Related Gynecologic Operations. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania. New (Sixth) Revised Edition. Octavo of 992 Pages, with 847 Illustrations, 43 of them in Colors. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $5.00 net; Half-morocco, $6.50, net.

In this splendid volume there is afforded a striking demonstration of the fact that all the diseases of women must be considered in relation with the chief act in woman's history, child-bearing. The vast majority of them are consequences of that process.

The systematic way in which the author has covered the subject is admirable. It has been the constant aim of the author to condense the text, as far as consistent with a comprehensive treatment of the subject. The work is one of surpassing excellence, and an extensive amount of original drawings and photographs have been employed, which show considerable care and forethought.

The book is divided into seven parts: Part I, Pregnancy; Part II, The Physiology and Management of Labor and of the Puerperium; Part III, The Mechanism of Labor; Part IV, The Pathology of Labor; Part V, Pathology of the Puerperium; Part VI, Obstetric Operations; Part VII, The Newborn Infant.

All the chapters are good, and nothing of importance seems to have been left unsaid. A complete and comprehensive text-book, and as such can be highly recommended to students, general practitioners, and specialists.

A PRACTICAL TREATISE ON OPHTHALMOLOGY. By L. Webster Fox, M.D., LL.D., Professor of Ophthalmology in the Medico-Chirurgical College; Ophthalmic Surgeon in the Medico-Chirurgical Hospital, Philadelphia, Pa.; Member of the Army Reserve Medical Corps, Etc. Cloth, 807 Pages, with Six Colored Plates and 300 Illustrations in the Text. New York and London: D. Appleton & Co., 1910. Price, $6.00.

The ceaseless production of text-books on ophthalmology has so sorely tried reviewers and literary critics, that it is refreshing to have the work under consideration before us. No end of innovations have been attempted, to elevate such books from the general class, so as to serve the needs of both specialist and general practitioner alike; yet, there still remained a gap to be spanned. This book cannot be justly reviewed as a whole, as its individual merits are too striking to be simply mentioned in a general criticism. The chapters on "Embryology" and "Anatomy" are concise and authoritative desiderata often lacking in what are at best rather difficult subjects to manage in a practical treatise. Plate II, showing

the origin and distribution of the optic nerve fibers, is conspicuous for its lucidity and artistic execution. The chapter on "Diseases of the Eyelids" is unusually complete. Especially noteworthy of mention are the parts devoted to "Herpes Zoster Ophthalmicus," "Xanthelasma," "Ptosis," "Ectropion" and "Entropion." In the chapter on the "Lacrymal Apparatus" we find a beautiful delineation of the operation for extirpation of the lacrymal sac. The diseases of the conjunctiva are considered abreast of the progress in bacteriology, this chapter being alone a valuable monograph on the subject. It is gratifying to note the consideration given the newly discovered trachoma bodies, although it is to be regretted that their morphology is still somewhat obscure; but on the whole, the subject has been treated with due regard to contemporaneous literature.

While the rarer forms of corneal disease are not discussed *in extenso*, a commendable characteristic in every practical treatise, their classification is nevertheless unusually clear. Ophthalmic surgeons will find in the chapter several original and undoubtedly useful therapeutic procedures. The chapter on the "Iris and Ciliary Body" appeals, first of all, to the student, for here he will find a comprehensive table showing the differential diagnosis between conjunctivitis, iritis, and glaucoma, subjects which so often try both student and teacher. The chapters devoted to the "Diseases of the Choroid, Retina, and Optic Nerve" are manifestly the result of a ripe experience in ophthalmoscopy, and present the full panorama of knowledge which the ophthalmoscope has revealed. Color-perception and color-blindness are not only discussed from the ophthalmological standpoint, but are prefaced by an outline of the physics, and appended by a description of the various practical tests, long-felt wants by railroad surgeons. The chapter on "Glaucoma" merits the closest observation and study, as it is modern and authoritative throughout. The chapters devoted to "General Diseases," "Nervous Diseases," and the "Pupil in Health and Disease," again prove the necessity for every specialist being a general clinician, and disprove the absurd demarcation of specialism from general medicine. Refraction and the extra-ocular muscles are thoroughly discussed in a manner which should equip every general practitioner studying these chapters with a practical working knowledge of the subjects. A chapter on "Operative Technique" and one on "Laboratory Technique" are the final chapters, a complete and accurate index finishing the work. The illustrations throughout the book must be seen to be appreciated, and they reflect great credit both upon the author and the publishers. In attempting to present correct illustrations of such conditions as blastomycosis of the eyelid, herpes zoster, ophthalmicus, extirpation of the lacrymal sac, peridectomy, Hutchinson teeth, the proper way of holding instruments, Mules' operation, and many other conditions, the author and publishers have set themselves a difficult task, which, nevertheless, has been most satisfactorily overcome. The illustrations showing the proper way of holding various ophthalmic instruments inaugurates a new departure in a text-book on ophthalmology. These illustrations forcibly present the fact that the manner of holding ophthalmic instruments is not immaterial, something which urgently needs implantation in this country, where the "Handhabung der Instrumente" of the German master operators is too often a closed book. The author makes no extravagant statements in his preface, at no time is he ultra-scientific, he has been most considerate of contemporaneous literature, and generous in the quotations of his colleagues. Here and there, a punctuation, a letter slightly misplaced, or a slight ambiguity in diction may be encountered, and these have to be found with a searchlight. There is only one mistake that we feel that the author has made, namely, by not giving us more books from his pen, which is, however, amply compensated for by the quality of his latest production, which must remain a classical authority on the subject.

INDEX

MONTHLY CYCLOPÆDIA SECTION

List of Contributors

BALDWIN, EDWARD R., 393.
BARNES, HARRY LEE, 580.
BENEDICT, A. L., 641.
BLAKE, CLARENCE JOHN, 475.
BRAV, HERMAN A., 268.
BROWNING, C. C., 207.
BUTLER, MARGARET F., 7.
DEAVER, JOHN B., 257.
DOWNING, BERTHA C., 528.
FLICK, LAWRENCE F., 456.
GOLDTHWAIT, JOEL E., 270.
GORDON, ALFRED, 199.
GREEN, THOS. G., 136.
HANSELL, HOWARD F., 75, 594.
HEMMETER, JOHN C., 449.
HINSDALE, GUY, 193.
HUBER, JOHN B., 10.
JACOBI, A., 385.
KING, ALFRED, 467.
KOLIPINSKI, LOUIS, 65, 129, 328.
LAPLACE, ERNEST, 717.
McCARTHY, D. J., 709.
McKEE, JAMES H., 513.
MATAS, RUDOLPH, 705.
MUSCHLITZ, C. H., 13.
OLIVER, CHARLES A., 651, 721.
PHILLIPS, W. F. R., 522.
POTTENGER, F. M., 1.
RICHARDSON, CHARLES W., 577.
RIEWEL, H. V., 587.
ROBBINS, H. A., 519.
SAJOUS, C. E. DE M., 16, 83, 211, 278, 341, 533, 596, 662.
SCHUMANN, E. A., 80.
SIDIS, BORIS, 473.
SMALL, H. BEAUMONT, 599.
STEWART, F. E., 335, 397.
STILLMAN, WILLIAM O., 658.
TAYLOR, J. MADISON, 150, 403, 712.
UNDERHILL, F. P., 460.
UPSON, HENRY S., 648.
WEAVER, H. B., 272.
WILCOX, REYNOLD WEBB., 333.
WILEY, H. W., 321.
WILLIAMS, TOM A., 146, 468.

Names of Authors Quoted During the Year 1909

Adami, J. G., 729.
Amberg, Emil, 347.
Andalo, F., 670.
André, Ch., 23.
Antenore, N., 544.
Arloing, F., 26.
Arloing F., and P. Courmont, 30
Armstrong, J. M., 349.
Auld, A. G., 89.

Babcock, R. H., 411.
Baird, A. W., 603.
Baldwin, E. R., 157, 393.
Barker, Llewellys F., and F. M. Hanes, 667.
Barlach, 20.
Barnes, Harry Lee, 580.
Basch, K., 222.
Bashford, E. F., 599.
Benedict, A. L., 641.
Bettmann, H. W., 21.
Blake, Clarence John, 475.
Blake, E. M., 348.
Blumfeld, J., 543.
Boas, I., 541.
Braun, W. and H. Boruttau, 602.
Brav, Herman A., 268.
Brennemann, Joseph, 218.
Brocq, 537.
Brown, L., 25, 219.
Browning, C. C., 207.
Burkitt, R. W., 600.
Butler, Margaret F., 7.

Cade, A., 22.
Casselberry, W. E., 540.
Chute, A. L., 733.
Clarke, T. W., 478.
Claude and Schmiergeld, 346.
Colbeck, E. H., 89.
Coleman, Warren, 734.
Coombs, C., 93.
Cornet, P., 282.
Courmont, Jules and A. Lesieur, 31.
Courmont, P., 30.

Davis, J. S., 284.
Deaver, John B., 257.
Deeks, W. E. and W. F. Shaw, 730.
Dixon A., 282.
Don, Alexander, 350.
Dow, W., 284.
Downing, Bertha C., 528.

Earp, S. E., 349.
Ehrenfried, Albert, 730.

Fenner, R., 91.
Flick, Lawrence F., 456.
Forchheimer, F., 217.
Foxworthy, F. W., 478.
Frank, R. T., 218.
Franz, 536.
Freeman, R. G., 536.
Freer, 218.
French, H., 407.

Gehrung, J. A., 24.
Glaserfeld, B., 535.
Goldthwait, Joel E., 270.
Goodhart, J. F., 669.
Gordon, Alfred, 199, 283.
Gossage, A. M., 605.
Gottheil, W. S., 541.
Gowers, W. R., 412.
Green, Thomas, G., 136.
Gunzel, Otto, 665.
Guthrie, D. J., 668.

Haggard, W. D., 28.
Hall, A. J., 600.
Hamilton, A. McL., 26.
Hanes, Frederick M., 667.
Hansell, Howard F., 75, 594.
Hartog, 535.
Heineke, H., 604.
Heitzman, C. W., 92.
Hemmeter, John C., 449.
Herman, G., 734.
Herrman, C., 414.
Hessert, William, 669.
Hinsdale, Guy, 193.
Howland, J., 22.
Huber, John B., 10.
Huchard, 543.

Jacobi, A., 385.
Johnston, C. A., 414.

Kanavel, A. B., 285.
Katzenstein, J., 603.
Kelly, H. A., 733.
Kerr, W. W., 407.
King, Alfred, 467.
King, W., 217.
Knowles, F. C., 217.
Koeppe, H., 537.
Kolipinski, Louis, 65, 129, 328.
Koplik, H., 220.
Lacassagne and Martin, 28.
Laplace, Ernest, 717.
LaRoque, G. Paul, 732.
Lees, D. B., 221.
Léopold-Lévy, H. Rothschild and Huchard, 543.
Lesem, Wm., 346.
Lesieur, A., 31.
Lewin, 408.
Litzenberg, J. C. and S. M. White, 25.
Lloyd, W., 155.

McAlister, C. J., and H. C. Ross, 155.
McCabe, W. M., 408.
McCarthy, D. J., 709.
McClintock, C. T. and W. King, 217.
McCrea, Thos., 540.

McKee, James H., 513.
McPhedran, A., 31.

Marinesco, G., 21.
Martin, 28.
Matas, Rudolph, 705.
Maury, J. W. D., 410.
Murray, G. R., 602.
Muschlitz, C. H., 13.

Nassauer, M., 411.

Oliver, Charles A., 651, 721.
Osler, Wm., 282.

Payr, 731.
Pearce, 19.
Pedersen, V. C., 349.
Pels-Leusden, 90.
Phillips, John, 216.
Phillips, W. F. R., 522.
Pinard, A., 477.
Plehn, 603.
Poncet, A., 28.
Ponthiere, L. de, 156.
Pottenger, F. M., 1.
Power, D'Arcy, 735.
Prest, E. E., 348.
Price, G. E., 406.

Reiche, A., 410.
Richardson, Charles W., 577.
Riewel, H. V., 587.
Ringer, A. S., 412.
Robbins, H. A., 519.
Robinson, B., 346, 538.
Rogers, L., 544.
Rolly, F., 409.
Rosenberger, R. C., 607.
Rossiter, P. S., 538.
Rothschild, 601.
Rothschild, H. de, 543.
Rubens, 29.
Rudisch, J., 476, 666.
Ruhräh, John, 542.
Rzentkowski, C. v., 406.

Sajous, C. E. de M., 16, 83, 211, 278, 341, 533, 596, 662.
Sajous, L. T. de M., 411.
Salzer, H., 350.
Savill, T. D., 606.
Schabad, J. A., 413.
Schmiergeld, 346.
Schumann, Edward A., 80.
Schwarz, E., 667.
Senftleben, 222.
Sergent, E., 606.
Shaw, W. F., 730.
Shepherd, F. J., 535.
Sidis, Boris, 473.
Sill, E. M., 730.
Small, H. Beaumont, 599.
Sprenger, 157.
Spriggs, N. I., 220.
Squire, J. E., 539.
Stewart, F. E., 335, 397.
Stillman, William O., 658.
Stockton, C. J., 536.
Stone, A. K., 605.
Stone, C. H., 413.
Stowe, H. M., 409.
Stricker, L., 604.
Stuart-Low, W., 729.
Suker, G. F., 539.
Sweeny, G. B., 414.
Swett, P. P., 476.

Taylor, J. Madison, 150, 403, 712.
Teissier, J., 19.
Terray, 408.
Thumim, L., 347.
Tirard, N., 23, 665.
Tivy, C. B. F., 665.
Tovey, D. W., 729.

Underhill, Frank P., 460.
Upson, Henry S., 648.

Veit, 90.
Von den Velden, R., 283.
Von Kutschera, A., 477.
Von Noorden, Carl, 668.

Wakefield, A. W., 20.
Wallace, G. B. and A. S. Ringer, 412.
Ward, S. B., 732.
Watson, L. F., 732.
Waugh, W. F., 221.
Weaver, H. B., 272.
Weill, E. and G. Mouriquand, 219.
White, C., 731.
White, S. M., 25.
Widmer, C. S., 731.
Wilcox, Reynolds Webb, 333.
Wiley, H. W., 321.
Williams, J. W., 91.
Williams, Leonard, 345.
Williams, Tom A., 146, 468.
Wilson, L. B., 24.

Original Articles

Achylia gastrica. A. L. Benedict..... 641
Adrenal extract in Addison's disease. Charles E. de M. Sajous..... 211
The adrenal principle as the main active agent in pituitary, testicular, ovarian, and other animal extracts. Charles E. de M. Sajous 273, 341
Adrenals in sudden death. Charles E. de M. Sajous 596, 662
Case of neuroma of the orbit. Howard F. Hansell 594
A case of tuberculosis of the uterus, cervix and vagina, with pyometra. Edward A. Schumann 80
Cataract. Charles A. Oliver.....651, 721
Cholelithiasis: gall-stone disease. John C. Hemmeter 449
The clarification of our concepts concerning hysteria. Tom A. Williams..... 146
Congenital unilateral hypertrophy—Report of case. C. H. Muschlitz..... 13
Constitutional conditions affecting nasal catarrh. Charles W. Richardson..... 577
Curative powers in human milk. J. Madison Taylor 712
Dementia præcox caused by dental impaction. Henry S. Upson 648
Diabetes mellitus as an infectious disease. Alfred King 467
Diet as a prophylactic and therapeutic. H. W. Wiley 321
Extra-uterine pregnancy. John B. Deaver..... 257
The fæcal origin of some forms of postoperative tetanus, and its prophylaxis by dietetic or culinary measures. Rudolph Matas.. 705
A few practical applications of the newest principles introduced by Dr. Sajous. J. Madison Taylor 150
Graduated outdoor labor in pulmonary tuberculosis. Guy Hinsdale 193
The hypnoidal state in psychotherapeutics. Boris Sidis 473
The importance of careful postoperative treatment in rectal operations. Herman A. Brav 268
The importance of the joints of the pelvic girdle. Joel E. Goldthwait 270
Is the human body supplied with an autoprotective mechanism? A new theory of immunity based on the ductless glands. Charles E. de M. Sajous..... 16
Medical treatment of acute appendicitis. Thomas G. Green 136
The milk question from the standpoint of the pediatrician. James H. McKee..... 513
Ocular traumatism, A cause of the neuroses. Howard F. Hansell 75
Organic nervous diseases from a pension examiner's standpoint. D. J. McCarthy..... 709
Pneumonia: Its danger point and how to avoid it, according to Dr. Sajous. J. Madison Taylor 403
Practical suggestions in the administration of tuberculin, together with a discussion of theory upon which its action is based. F. M. Pottenger 1
The present knowledge of the action of cathartic drugs. Frank P. Underhill 460
Preventive medicine in a neglected direction. Bertha C. Downing..... 528
The problem of efficient nursing for persons of moderate means. William O. Stillman. 658
The prognosis of febrile cases of pulmonary tuberculosis. Harry Lee Barnes..... 580
Progress and changes in the treatment of tuberculosis during the past twenty years. Edward R. Baldwin 393
Relations of rectal disease to general health. Ernest Laplace 717
Report of case of tuberculosis of the ovary treated with tuberculin. C. C. Browning 207

Requisites for the treatment of the psychoneuroses: Psychopathological ignorance, and the misuse of psychoneurotherapy by the novice. Tom A. Williams..... 468
Seasonal influence on suicide. W. F. R. Phillips 522
Some reflex neuroses cured by treatment of coexistent nasal affections. Margaret F. Butler 7
The standardization of materia medica products. F. E. Stewart 335, 397
Superficial dermatitis of the external auditory canal. Clarence John Blake..... 475
Syphilis in its relation to nervous and mental diseases. Alfred Gordon 199
The therapeutic action of iodine and mercury in diseases other than syphilis. H. A. Robbins 519
Therapeutics of pain. Lawrence F. Flick..... 456
The therapeutics of solution of calcium creosote. Louis Kolipinski 328
The three-day treatment of drug and alcohol habitués with hyocine. H. V. Riewel.. 587
The thyroid preparations in practice. Charles E. de M. Sajous..... 83
The treatment of the Stokes-Adams syndrome. Reynold Webb Wilcox..... 333
The treatment of typhoid fever with solution of calcium creosote. Louis Kolipinski..65, 129
Tuberculin therapy. H. B. Weaver 272
Use of tobacco by the immature. John B. Huber 10
Variations in the medicinal therapy of pneumonia in the last half century. A. Jacobi 385

Editorials

The early treatment of insanity. H. Beaumont Small 599
The Philadelphia water supply. C. E. de M. Sajous 533
The transactions of the National Association of U. S. Pension Examining Surgeons..... 729

General Index

Abdominal operations, early rising after. Hartog 535
Eruptions after. F. J. Shepherd 535
Phenomena with incipient pneumonia. B. Glaserfeld 535
Abortion, treatment of. Franz 536
Abscess in the ear, yeast in the treatment of. N. Antenore 544
Of the liver, tropical, prevention of. L. Rogers 544
Acetone treatment of inoperable carcinoma. D. W. Tovey 729
Achylia gastrica. C. J. Stockton..... 536
A. L. Benedict..... 641
Acromegaly, cardiovascular changes in. John Phillips 216
Addison's disease, adrenal extract in. C. E. de M. Sajous 211
Adenoids in infancy. R. G. Freeman 536
Nocturnal incontinence, and the thyroid gland. Leonard Williams 345
Adiposis dolorosa. G. E. Price 406
Adolescent, hæmorrhages into the vitreous body in the. J. A. Gehrung 24
Adrenal extract in Addison's disease. Charles E. de M. Sajous 211
Gland, lesions of. Pearce 19
Principle as the main active agent in pituitary, testicular, ovarian, and other animal extracts. Charles E. de M. Sajous 278, 341
Adrenalin-saline infusion in peritonitis. H. Heineke 604
Adrenals, hæmorrhage of the, in infants. J. C. Litzenberg and S. M. White..... 25
In sudden death. Charles E. de M. Sajous 596, 662
Relation of, to pancreatic glycosuria. C. H. Stone 413
Albuminuria. Nestor Tirard 665
Intermittent, of childhood considered in its relation to hereditary tuberculosis. J. Teissier 19
Alcohol habitués, three-day treatment of, with hyoscine. H. V. Riewel 587
American Journal of Clinical Medicine..... 158
American Journal of Surgery..... 158
American Medical Editors' Association Meeting 286
Amœbic dysentery, treatment of. W. E. Deeks and W. F. Shaw..... 730
Amyl nitrite, action of, on the arteries. C. v. Rzentkowski 406
Anæmia, infantile, prevention of. J. Katzenstein 603
Pernicious. H. French 407
Anæsthesia, prevention of nausea following. L. F. Watson 732
Angina pectoris, painless and painful. W. W. Kerr 407
Anthrax, treatment of. Barlach 20
Antitoxin, oral administration of. C. T. McClintock and W. King..... 217
Appendicitis, acute, medical treatment of. Thomas G. Green 136
Treatment of. B. Robinson 346
Arteries, action of amyl nitrite on. C. v. Rzentkowski 406
Arteriosclerosis, nature of. J. G. Adami..... 729
Pathogenesis of. E. H. Colbeck 89
Ascites in typhoid fever. A. McPhedran..... 31
Asphyxia, pleural adhesions in. Lacassagne and Martin 28
Asthma. A. G. Auld..... 89
Bronchial, atropine in the treatment of. Terray 408
Treatment of. Otto Gunzel 665
Calomel in. C. B. F. Tivy..... 665
Its cause and treatment. W. Lloyd..... 155
Atropine as a hemostatic 286
In diabetes mellitus. J. Rudisch 476
In the treatment of bronchial asthma. Terray 408
Autointoxication, intestinal. A. Dixon..... 282
Recurring coryza a manifestation of. P. Cornet 282

Auto-protective mechanism, is the human body supplied with an? C. E. de M. Sajous. 16

Bier's method of passive congestion. A. W. Wakefield 20
Bismuth poisoning. Lewin 408
Blood-pressure, lowering of by nitrites. G. B. Wallace and A. S. Ringer..... 412

Book Reviews:—

An Alabama Student and other Biographical Essays. William Osler 158
Art of Natural Sleep. Lyman P. Powell..... 95
Atlas and Text-book of the Human Anatomy, Vol. III. Johannes Sobotta..... 32
Bacterial Food Poisoning. A. Dieudonné..... 224
Blood Examination in Surgical Diagnosis. Ira S. Wile 159
Book on the Physician Himself. D. W. Cathell and William T. Cathell 415
Borderland Studies. George M. Gould..... 94
Climate. Robert DeCourcey Ward 96
Dante—Physician. A. G. Drury 480
Diseases of the Nervous System. Alfred Gordon 158
Diseases of the Nose and Throat. D. Braden Kyle 94
Diseases of the Nose, Throat, and Ear, and their Accessory Cavities. Seth Scott Bishop 479
Diseases of the Skin and the Eruptive Fevers. Jay F. Schamberg 415
Diseases of the Spinal Cord. R. T. Williamson 224
Disorders of the Bladder. Fallon Cabot..... 224
Emergency Surgery. John W. Sluss 96
Epoch-making Contributions to Medicine, Surgery and the Allied Sciences. C. M. B. Camac 736
Essentials of Laboratory Diagnosis. Francis Ashley Faught 608
Everyday Diseases of Children and Their Rational Treatment. George H. Candler. 672
Expansion of Races. Charles Edward Woodruff 672
Experimental Pharmacology. Charles Wilson Greene 735
Experimental Researches on Specific Therapeutics. Paul Ehrlich 671
Experimental Study of Sleep. Boris Sidis.... 670
Functional Nervous Disorders in Childhood. Leonard Guthrie 96
Further Advances in Physiology. Leonard Hill 736
General Surgery. Ehrich Lexer..... 160
Glandular Enlargement and other Diseases of the Lymphatic System. Arthur Edmunds 96
Glimpses of Medical Europe. Ralph Thompson 351
Hygiene for Nurses. Isabel McIsaac 288
Insomnia and Nerve Strain. Henry S. Upson 480
International Clinics, Vol. III. Edited by W. T. Longcope 93
Manual of Diseases of the Nose and Throat. Cornelius G. Coakley 95
Manual of the Practice of Medicine. A. A. Stevens 32
Medical Lectures and Aphorisms. Samuel Gee 160
Medical Sociology. James Peter Warbasse.... 736
Nervous and Mental Diseases. Archibald Church and Frederick Peterson 671
On Infantilism from Chronic Intestinal Infection. C. A. Herter..... 671
On Means for the Prolongation of Life. Sir Hermann Weber 95

Book Reviews (Continued):—

Operations of General Practice. Edred M. Corner 288
Orthopedic Surgery for Practitioners. Henry Ling Taylor 671
Parsimony in Nutrition. Sir James Crichton-Brown 287
Pastoral Medicine. Alexander E. Sanford.... 223
Practice of Medicine for Nurses. George Howard Hoxie 288
Psychic Treatment of Nervous Disorders. Paul Dubois 735
Psychological Principles in Treatment. W. Langdon Brown 287
Psychology of Dementia Præcox. C. G. Jung. 672
Pulmonary Tuberculosis and All Its Complications. Sherman G. Bonney..... 351
Reference Hand-book for Nurses. Amanda K. Beck 224
Refraction and How to Refract. James Thorington 416
Report of Committee on Building of Model Houses. Gen. George M. Sternberg..... 223
Seven Hundred Surgical Suggestions. Walter M. Brickner 160
Surgery: Its Principles and Practice. Vol. IV. W. W. Keen..... 608
Surgery of the Ear. Samuel J. Kopetzky.... 32
Surgical Memoirs and Other Essays. James G. Mumford 286
Text-book of Botany and Pharmacognosy. Henry Kraemer 416
Text-book of Operative Surgery. Warren Stone Bickham 352
Text-book of Otology. Fr. Bezold and Fr. Siebenmann: Translated by J. Hollinger. 286
Text-book of Surgical Anatomy. William Francis Campbell 288
The Body at Work. Alexander Hill..... 287
The Efficient Life. Luther H. Gulick 94
The Matter With Nervousness. H. C. Sawyer. 480
The Problem of Age, Growth and Death. Charles S. Minot 159
The Semi-insane, the Semi-responsible. Joseph Grasset 223
Tuberculosis of the Nose and Throat. Lorenzo B. Lockard 479
Bromide eruption. F. C. Knowles 217
Bromides, epilepsy and the. Wm. Lesem 346
Bronchial asthma, atropine in the treatment of. Terray 408
Treatment of. Otto Gunzel 665
Bronchitis, chronic, treatment of. F. Forchheimer 217
Burns, treatment of, general. Pels-Leusden.. 90
Buttermilk in infant feeding. H. Koeppe..... 537

Calcium creosote, therapeutics of solution of. Louis Kolipinski 328
Treatment of typhoid fever with solution of. Louis Kolipinski 65, 129
Calomel in asthma. C. B. F. Tivy 665
Cancer in man and animals. E. F. Bashford.. 599
Of the Tongue. Alexander Dow..... 350
Thyroidectomy and. W. Stuart-Low..... 729
Carbon dioxid in lupus erythematosus. W. S. Gottheil 541
Carcinoma, excitation of the leucocytes in cases of. C. J. McAlister and H. C. Ross..... 155
Inoperable, acetone treatment of. W. D. Tovey 729
Cardiovascular changes in acromegaly. John Phillips 216
Case of neuroma of the orbit. Howard F. Hansell 594
Of tuberculosis of the uterus, cervix, and vagina, with pyometra. Edward A. Schumann 80

Cataract. Charles A. Oliver 651, 721
Cathartic drugs, present knowledge of the action of. Frank P. Underhill..... 460
Cerebrospinal meningitis, epidemic. W. M. McCabe 408
Cholecystitis. H. W. Bettmann 21
Chronic, as a cause of myocardial incompetence. R. G. Babcock..... 411
Cholelithiasis: Gall-stone disease. John C. Hemmeter 449
Cholera, treatment of. R. W. Burkitt..... 600
Chorea, nasopharyngeal origin of. L. de Ponthiere 156
Treatment of, by intraspinal injections of magnesium sulphate. G. Marinesco 21
Clarification of our concepts concerning hysteria. Tom A. Williams 146
Club foot, cure of, in infancy, without operation. Albert Ehrenfried 730
Colles's fracture. P. P. Swett 476
Congenital unilateral hypertrophy. Report of case. C. H. Muschlitz 13
Conjunctival tuberculin test. E. R. Baldwin... 157
Constitutional conditions affecting nasal catarrh. Charles W. Richardson..... 577
Coryza, recurring, a manifestation of autointoxication. P. Cornet 282
Cretinism, thyroid treatment of. A. von Kutschera 477
Curative powers in human milk. J. Madison Taylor 712
Cytologic examination of tuberculous effusions in the various cavities, diagnostic value of. A. Cade 22

Dementia præcox caused by dental impaction. Henry S. Upson 648
Dental impaction, dementia præcox caused by Henry S. Upson 648
Dermatitis, superficial, of the external auditory canal. Clarence John Blake 475
Diabetes and exophthalmic goiter. G. R. Murray 602
Treatment of. J. Rudisch 666
Mellitus as an infectious disease. Alfred King 467
Atropin in. J. Rudisch 476
Effect of certain drugs on. A. J. Hall.... 600
Diet as a prophylactic and therapeutic. H. W. Wiley 321
Diphtheria, heart in. J. Howland 22
Dissemination of Koch's bacillus, flies as agents in the. Ch. André..... 23
Ductless glands in epilepsy. Claude and Schmiergeld 346
New theory of immunity based on the. C. E. de M. Sajous 16
Dysentery, amœbic treatment of. W. E. Deeks and W. F. Shaw 730
Dysmenorrhœa. Veit 90

Early rising after abdominal operations. Hartog 535
Treatment of insanity. H. Beaumont Small. 599
Ectopic gestation. R. T. Frank 218
Eczema, chronic, in infants. Freer..... 218
Treatment of. Brocq 537
Efficient nursing for persons of moderate means. William O. Stillman..... 658
Effusions, tuberculous, diagnostic and prognostic significance of. P. Courmont..... 30
Elephantiasis, treatment of. P. S. Rossiter.. 538
Empyema and delayed resolution in lobar-pneumonia. Thos. McCrea..... 540
Endocarditis, infectious. Wm. Osler 282
Infective or ulcerative. N. Tirard..... 23
Enlargement of the prostate, etiology of. Rothschild 601
Epilepsy and the bromides. Wm. Lesem..... 346
Ductless glands in. Claude and Schmiergeld 346
Senile. T. D. Savill 606
Epistaxis, treatment of. Beverly Robinson.... 538
Eruptions after abdominal operations. F. J. Shepherd 535
Ethyl chlorid as a general anæsthetic. E. M. Sill 730
Excitation of the leucocytes in cases of carcinoma. C. J. McAlister and H. C. Ross. 155
Exophthalmic goiter. G. F. Suker 539
And diabetes. G. R. Murray..... 602
And pregnancy. H. M. Stowe 409
And the reproductive function. A. Pinard.. 477
Exophthalmos and other eye signs in chronic nephritis. Llewellys F. Barker and Frederick M. Hanes 667
Extra-uterine pregnancy. John B. Deaver..... 257
Eyelids, œdema of the, and influenza. N. I. Spriggs 220

Fæcal origin of some forms of postoperative tetanus, and its prophylaxis. Rudolph Matas 705
Fever in infection, action of. F. Rolly..... 409
Few practical applications of the newest principles introduced by Dr. Sajous. J. Madison Taylor 150
Flatulency. E. Schwarz 667
Flies as agents in the dissemination of Koch's bacillus. Ch. André..... 23
Food intoxication in infancy. Joseph Brennemann 218
Fracture, Colles's. P. P. Swett..... 476
Furunculosis and pemphigus in children, sweating and mercurial baths for. A. Reiche. 410

Gall-stone disease. John C. Hemmeter..... 449
Gastric digestion of infants. T. W. Clarke..... 478
Ulcer, milk-free diet in. F. W. Foxworthy.. 478
Glycosuria in pregnancy, clinical significance of. J. W. Williams 91
Pancreatic, relation of the thyroid and adrenals to. C. H. Stone 413
Gout, treatment of, by thyminic acid. R. Fenner 91
Graduated outdoor labor in pulmonary tuberculosis. Guy Hinsdale 193
Rest in pulmonary tuberculosis. E. E. Prest. 348
Graves's disease, pathological changes in the thyroid as related to the varying symptoms in. L. B. Wilson 24

Hæmoptysis, treatment of. J. E. Squire..... 539
Hæmorrhage, internal, salt in treatment of. R. Von Den Velden..... 283
Into the vitreous body in the adolescent. J. A. Gehrung 24
Of the adrenals in infants. J. C. Litzenberg and S. M. White 25
Hæmorrhoids, new operations for. C. W. Heitzman 92
Heart in diphtheria. J. Howland 22
In pulmonary tuberculosis. L. Brown.....25, 219
Massage in surgery. C. S. White 731
Rheumatism of the. A. M. Gossage..... 605
Hernia, etiology of. C. Widmer..... 731
Homogeneous cultures of the tubercle bacillus. S. Arloing and P. Courmont..... 30
Human milk, curative powers in. J. Madison Taylor 712
Hyoscine, three-day treatment of drug and alcohol habitués with. H. V. Riewel.... 587

Hypertrophy, congenital unilateral. C. H. Muschlitz 13
Hypnoidal state in psychotherapeutics. Boris Sidis 473
Hypophysis and ovaries, relations between. L. Thumim 347
Hysteria, clarification of our concepts concerning. Tom A. Williams 146

Ichthyosis and the thyroid gland. E. Weill and G. Mouriquand 219
Ileus, treatment of. W. Braun and H. Boruttau. 602
Immunity, new theory of, based on the ductless glands. C. E. de M. Sajous..... 16
Tuberculous and negative reinoculations. Jules Courmont and A. Lesieur 31
Importance of careful postoperative treatment in rectal operations. Herman A. Brav..... 268
Joints of the pelvic girdle. Joel E. Goldthwait 270
Incipient tuberculosis. C. A. Johnston..... 414
Infancy, food intoxication in. Joseph Brennemann 218
Infant feeding, buttermilk in. H. Koeppe 537
Infantile anæmia, prevention of. J. Katzenstein 603
Scorbutus, early diagnosis of. H. Koplik..... 220
Infection, action of fever in. F. Rolly..... 409
Infectious endocarditis. Wm. Osler 282
N. Tirard 23
Inflammatory tuberculosis. A. Poncet..... 28
Influenza and œdema of the eyelids. N. I. Spriggs 220
Insanity, early treatment of. H. Beaumont Small 599
Insomnia. A. Gordon 283
Intestinal autointoxication. A. Dixon..... 282
Obstruction. J. W. D. Maury 410
Intramuscular injections in the treatment of syphilis. V. C. Pedersen 349
Iodine and mercury in diseases other than syphilis, therapeutic action of. H. A. Robbins 519
Is the human body supplied with an autoprotective mechanism. A new theory of immunity based on the ductless glands. Charles E. de M. Sajous..... 16
Ivy poisoning. A. W. Baird..... 603

Koch's bacillus, flies as agents in the dissemination of. Ch. André..... 23

Laryngeal tuberculosis. W. E. Casselberry... 540
Latent malaria, diagnosis of. Plehn..... 603
Leucocytes in meningitis. W. Dow 284
Leucorrhœa, treatment of. M. Nassauer..... 411
Lime starvation and rachitis. J. A. Schabad... 413
Liver, tropical abscess of. L. Rogers..... 544
Lobar pneumonia, empyema and delayed resolution in. Thos. McCrea 540
Locomotor ataxia, treatment of. A. McL. Hamilton 26
Lupus erythematosus, solid carbon dioxid in. W. S. Gottheil 541
Vulgaris, new principles for treatment of. Payr 731

Magnesium sulphate, treatment of chorea by intraspinal injections of. G. Marinesco. 21
Malaria, latent, diagnosis of. Plehn 603
Mastoiditis. Emil Amberg 347
Materia medica products, standardization of. F. E. Stewart 335, 397
Maternal milk as an immunizing agent to the nursling. L. T. de M. Sajous 411
Medical treatment of acute appendicitis. Thomas G. Green 136
Meningitis, epidemic cerebrospinal. W. M. McCabe 408
Leucocytes in. W. Dow 284
Mercury and iodine in diseases other than syphilis, therapeutic action of. H. A. Robbins 519
Milk-free diet in gastric ulcer. F. W. Foxworthy 478
Milk, human, curative powers in. J. Madison Taylor 712
Maternal, as an immunizing agent to the nursling. L. T. de M. Sajous 411
Question from the standpoint of the pediatrician. James H. McKee..... 513
Myocardial imcompetence, chronic cholecystitis as a cause of. R. H. Babcock..... 411
Myocarditis, chronic, nitroglycerin in. S. B. Ward 732
Rheumatic. C. Coombs 93
Myopathy and syringomyelia. W. R. Gowers.. 412

Nasal affections, rubber ball treatment of. Sprenger 157
Catarrh, constitutional conditions affecting. Charles W. Richardson 577
Nasopharyngeal origin of chorea. L. de Ponthiere 156
Nausea. I. Boas 541
Following anæsthesia, prevention of. L. F. Watson 732
Nephritis, chronic; exaphthalmos and other eye signs in. Llewellys F. Barker and Frederick M. Hanes..... 667
Nervous and mental diseases, syphilis in its relation to. Alfred Gordon 199
Diseases, organic, from a pension examiner's standpoint. D. J. McCarthy..... 709
System, relations between thymus and. K. Basch 222
Neuroma of the orbit. H. F. Hansell..... 594
Neuroses, ocular traumatism a cause of the. Howard F. Hansell 75
New theory of immunity based on the ductless glands. C. E. de M. Sajous..... 16
Nitrites, lowering of blood-pressure by. G. B. Wallace and A. S. Ringer..... 412
Nitroglycerin in chronic myocarditis. S. B. Ward 732
Nocturnal incontinence and the thyroid gland. Leonard Williams 345

Obesity. Carl von Noorden..... 668
Obstruction, intestinal. J. W. D. Maury..... 410
Ocular traumatism, a cause of the neuroses. Howard F. Hansell 75
Œdema of the eyelids, influenza and. N. I. Spriggs 220
Ophthalmia neonatorum. L. Stricker 604
Ophthalmo-reaction in tuberculin. F. Arloing. 26
Opium habit. W. F. Waugh..... 221
Orbit, neuroma of the. Howard F. Hansell..... 594
Organic nervous diseases from a pension examiner's standpoint. D. J. McCarthy... 709
Ovarian extract, adrenal principle as the main active agent in. C. E. de M. Sajous.278, 341
Tuberculosis treated with tuberculin. C. C. Browning 207
Ovaries and hypophysis, relations between. L. Thumim 347
Overfeeding of children. John Ruhräh..... 542

Pain, therapeutics of. Lawrence F. Flick.... 456
Pancreatic glycosuria, relation of the thyroid and adrenals to. C. H. Stone 413
Pancreatitis, etiology and pathogenesis of. W. D. Haggard 28
Passive congestion, Bier's method of. A. W. Wakefield 20
Pelvic girdle, importance of the joints of the. Joel E. Goldthwait 270

Pemphigus in children, sweating and mercurial baths for. A. Reiche 410
Peritonitis, adrenalin-saline infusion in. H. Heineke 604
Pernicious anæmia. H. French 407
Philadelphia water supply. C. E. de M. Sajous. 533
Pituitary extract, adrenal principle as the main active agent in. C. E. de M. Sajous..278, 341
Pleural adhesions in sudden death, asphyxia, and severe injuries. Lacassagne and Martin 28
Pleurisy and pneumonia in inflammation of intra-abdominal organs. G. Paul LaRoque 732
Pneumonia, incipient, abdominal phenomena with. B. Glasserfeld 535
In inflammation of intra-abdominal organs. G. Paul LaRoque 732
Its danger point and how to avoid it, according to Dr. Sajous. J. Madison Taylor... 403
Lobar. Thos. McCrea 540
Strophanthin in collapse in. A. K. Stone.. 605
Variations in the medicinal therapy of, in the last half century. A. Jacobi 385
Postanæsthetic vomiting, treatment of. J. Blumfeld 543
Postoperative psychoses. H. A. Kelly 733
Tetanus, fæcal origin of some forms of. Rudolph Matas 705
Practical applications of the newest principles introduced by Dr. Sajous. J. Madison Taylor 150
Suggestions in the administration of tuberculin, together with a discussion of theory upon which its action is based. F. M. Pottenger 1
Pregnancy and exophthalmic goiter. H. M. Stowe 409
Extra-uterine. John B. Deaver 257
Glycosuria in, clinical significance of. J. W. Williams 91
Tubal. G. Herman 734
Present knowledge of the action of cathartic drugs. Frank P. Underhill 460
Status of obstetrical teaching in Europe and America 670
Preventive medicine in a neglected direction. Bertha C. Downing 528
Problem of efficient nursing for persons of moderate means. William O. Stillman 533, 658
Prognosis of febrile cases of pulmonary tuberculosis. Harry Lee Barnes 580
Progress and changes in the treatment of tuberculosis during the past twenty years. Edward R. Baldwin 393
Prostate, etiology of enlargement of. Rothschild 601
Psychoneuroses, requisites for the treatment of the. Tom A. Williams 468
Psychoses, postoperative. H. A. Kelly..... 733
Psychotherapeutics, hypnoidal state in. Boris Sidis 473
Pulmonary tuberculosis, graduated outdoor labor in. Guy Hinsdale 193
Graduated rest in. E. E. Prest..... 348
Heart in. L. Brown 25, 219
Prognosis of febrile cases of. Harry Lee Barnes 580

Rachitis from lime starvation. J. A. Schabad. 413
Rectal disease, relations of, to general health. Ernest Laplace 717
Operations, importance of careful postoperative treatment in. Herman A. Brav.... 268
Rectum, ulceration of the. D'Arcy Power..... 735
Reflex neuroses cured by treatment of co-existent nasal affections. Margaret F. Butler. 7
Relations of rectal disease to general health. Ernest Laplace 717
Renal tuberculosis, diagnosis of. A. L. Chute. 733
Report of case of tuberculosis of the ovary treated with tuberculin. C. C. Browning 207
Reproductive function and exophthalmic goiter. A. Pinard 477
Requisites for the treatment of the psychoneuroses: Psychopathological ignorance and the misuse of psychotherapy by the novice. Tom A. Williams 468
Retinal hæmorrhages. E. M. Blake..... 348
Rheumatic myocarditis. C. Coombs..... 93
Rheumatism, acute: Treatment. S. E. Earp. 349
And subacute, effective treatment of. D. B. Lees 221
Of the heart. A. M. Gossage 605
Tuberculous and inflammatory tuberculosis. A. Poncet 28
Rubber ball treatment of nasal affections. Sprenger 157

Quinin in whooping-cough. F. Andalo 670
Quinsy, treatment of. D. J. Guthrie 668

Salt in treatment of internal hæmorrhage. R. von dem Velden 283
Scarlet fever carriers. C. Herman..... 414
Treatment of. Rubens 29
Scorbutus, infantile, early diagnosis of. H. Koplik 220
Seasonal influence on suicide. W. F. R. Phillips 522
Senile epilepsy. T. D. Savill..... 606
Severe injuries, pleural adhesions in. Lacassagne and Martin..... 28
Skin-grafts, method of splinting. J. S. Davis. 284
Small-pox, diagnosis of. J. M. Armstrong..... 349
Solid carbon dioxid in lupus erythematosus. W. S. Gottheil 541
Some reflex neuroses cured by treatment of co-existent nasal affections. Margaret F. Butler 7
Standardization of materia medica products. F. E. Stewart 335, 397
Stokes-Adams syndrome, treatment of. Reynold Webb Wilcox 333
Strophanthin in collapse in pneumonia. A. K. Stone 605
Sudden death, adrenals in. C. E. de M. Sajous 596, 662
Pleural adhesions in. Lacassagne and Martin 28
Suicide, seasonal influence of. W. F. R. Phillips 522
Superficial dermatitis of the external auditory canal. Clarence John Blake 475
Suprarenal insufficiency. E. Sergent 606
Sweating and mercurial baths for furunculosis and pemphigus in children. A. Reiche 410
Syphilis in its relation to nervous and mental diseases. Alfred Gordon 199
Intramuscular injections in the treatment of. V. C. Pedersen 349
Syringomyelia, myopathy and. W. R. Gowers. 412

Tenosynovitis of the hand. A. B. Kanavel..... 285
Testicular extract, adrenal principle as the main active agent in. C. E. de M. Sajous 278, 341
Tetanus, postoperative, fæcal origin of some forms of. Rudolph Matas 705
Treatment of. William Hessert 669
Therapeutic action of iodine and mercury in diseases other than syphilis. H. A. Robbins 519

Therapeutics of pain. Lawrence F. Flick..... 456
Of solution of calcium creosote. Louis Kolipinski 328
Three-day treatment of drug and alcohol habitués with hyoscine. H. V. Riewel. 587
Thyminic acid in treatment of gout. R. Fenner. 91
Thymus and the nervous system, relations between. K. Basch 222
Thyroid, ichthyosis and the. E. Weill and G. Mouriquand 219
In adenoids and nocturnal incontinence. Leonard Williams 345
Instability. Léopold-Lévy, H. de Rothschild, and Huchard 543
Pathological changes in, as related to the varying symptoms in Graves's disease. L. B. Wilson 24
Preparations in practice. Charles E. de M. Sajous 83
Relation of, to pancreatic glycosuria. C. H. Stone 413
Transplantation of. H. Salzer 350
Treatment of cretinism. A. von Kutschers.. 477
Thyroidectomy and cancer. W. Stuart-Low... 729
Tobacco, use of by the immature. John B. Huber 10
Tongue, cancer of the. Alexander Don..... 350
Transplantation of the thyroid. H. Salzer..... 350
Treatment of the Stokes-Adams syndrome. Reynold Webb Wilcox..... 333
Of typhoid fever with solution of calcium creosote. Louis Kolipinski 65, 129
Tropical abscess of liver, prevention of. L. Rogers 544
Tubal pregnancy. G. Herman 734
Tubercle bacillus in the circulating blood. R. C. Rosenberger 607
Homogeneous cultures of the. S. Arloing and P. Courmont 30
Human and bovine. G. B. Sweeny..... 414
Tuberculin, case of tuberculosis of the ovary treated with. C. C. Browning..... 207
Ophthalmo-reaction in. F. Arloing..... 26
Practical suggestions in the administration of. F. M. Pottenger 1
Test, conjunctival. E. R. Baldwin 157
Therapy. H. B. Weaver 272
Tuberculosis, hereditary, intermittent albuminuria of childhood considered in its relations to. J. Teissier 19
Incipient. C. A. Johnston 414
Inflammatory and tuberculous rheumatism. A. Poncet 28
Laryngeal. W. E. Casselberry 540
Of the ovary treated with tuberculin. C. C. Browning 207
Of the uterus, cervix, and vagina, with pyrometra. Edward A. Schumann..... 80
Progress and changes in the treatment of, during the past twenty years. Edward R. Baldwin 393
Pulmonary, graduated outdoor labor in. Guy Hinsdale 193
Graduated rest in. E. E. Prest 348
Heart in. L. Brown.....25, 219
Prognosis of febrile cases of. Harry Lee Barnes 580
Renal, diagnosis of. A. L. Chute 733
Tuberculous effusions and their diagnostic and prognostic significance. P. Courmont.... 30
Diagnostic value of cytologic examination of. A. Cade 22
Immunity and negative reinoculations. Jules Courmont and A. Lesieur 31
Rheumatism. A. Poncet 28
Typhoid fever, ascites in. A. McPhedran 31
Of short duration. Warren Coleman 734
Treatment of, with solution of calcium creosote. Louis Kolipinski 65, 129

Ulceration of the rectum, chronic. D'Arcy Power 735
Ulcerative endocarditis. N. Tirard 23
Unilateral hypertrophy, congenital. C. H. Muschlitz 13
Uric acid, treatment of. J. F. Goodhart..... 669
Use of tobacco by the immature. John B. Huber 10
Uterus, cervix, and vagina, tuberculosis of. Edward A. Schumann 80

Variations in the medicinal therapy of pneumonia in the last half century. A. Jacobi 385
Vitreous body, hæmorrhages into the, in the adolescent. J. A. Gehrung 24
Vomiting, postanæsthetic, treatment of. J. Blumfeld 543

Whooping-cough, quinin in. F. Andalo 670
Treatment of. Senftleben 222

Yeast in the treatment of abscess in the ear. N. Antenore 544

INDEX

MEDICAL BULLETIN SECTION

List of Contributors

ADLER, LEWIS H. JR.
ALLPORT, W. H.
ANDERS, JAMES M.
ASHMEAD, ALBERT S.
BOEHM, JOSEPH L.
BURGHOLDER, A. J.
BUXTON, L. HAINES.
CHRISTIAN, H. M.
CUTTER, EPHRAIM.
DAVIS, LUCIEN C.
HALE, B. L.
HARDIN, CHARLES B.
HEINECK, AIME PAUL.
HILL, EDWARD C.
HOLLOPETER, WM. C.
HORNE, BROSE.
LAPLACE, ERNEST.
M'GLINN, JOHN A.
M'KEE, E. S.
NOVACK, HARRY J.
OTT, ISAAC.
RANKIN, GUTHRIE.
RAUDENBUSH, JAMES STRICKER.
RAVITCH, M. L.
ROBINSON, BYRON.
RODMAN, WILLIAM L.
ROSS, THOMAS W.
ROTCH, THOMAS MORGAN.
SCOTT, JOHN C.
SHOEMAKER, JOHN V.
STEPHENS, T. G.
THOMAS, R. C.
WALLIS, J. FRANK.
WAHRER, C. F.
WOODBURY, CAPTAIN FRANK T.

General Index

ADDRESSES.

Address at the Commencement Exercises of the Medico-Chirurgical College and Hospital, Philadelphia, Pa., on June 5, 1909. Hon. Chauncey M. Depew 417

BOOK REVIEWS.

A Hand-book of Suggestive Therapeutics, Applied Hypnotism, Psychic Science. Henry S. Munro 63

American Illustrated Medical Dictionary. W. A. Newman Dorland 766

Annual Report of the Pennsylvania State College for the Year 1907-1908..... 511

Arteriosclerosis, Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. Louis M. Warfield..... 64

A Practical Treatise on Ophthalmology. L. Webster Fox 767

A Reference Hand-book of Gynecology for Nurses. Catharine McFarlane..... 128

A Text-book of Medical Chemistry and Toxicology. James W. Holland 255

A Text-book of Obstetrics. Barton Cooke Hirst 767

Bulletin of the Lloyd Library of Botany, Pharmacy, and Materia Medica. J. W. and C. G. Lloyd 640

Constipation and Intestinal Obstruction. Samuel G. Grant 256

Department of Commerce and Labor Bureau of the Census. S. N. D. North..... 384

Diet in Health and Disease. Julius Friedenwald and John Ruhräh..... 576

Diseases of the Genito-urinary Organs and Kidney. Robert Holmes Greene..... 127

Gonorrhœa in Women. Palmer Findley..... 63

Hand-book of Diseases of the Rectum. Louis J. Hirschman 512

Lincoln's Love Story. Elanor Atkinson..... 192

Modern Materia Medica and Therapeutics. A. A. Stevens 704

New and Non-official Remedies for 1909....384, 511

Obstetric Nursing and Gynecology. Edward P. Davis 192

Parsimony in Nutrition. Sir James Crichton-Browne 254

Physiological and Medical Observations Among the Indians of Southwestern United States and Southern Mexico. Ales Hrdlicka 511

Practical Dietetics with Reference to Diet in Disease. Alide Frances Pattee..... 192

Primary Studies for Nurses. Charlotte A. Aikens 255

Principles and Practice of Physical Diagnosis. John C. DaCosta 128

Proceedings of the Academy of Natural Sciences of Philadelphia 384

Saunders Books 64

Saunders' Pocket Medical Formulary. William M. Powell 255

Surgical Diagnosis. Daniel N. Eisendrath..... 767

Taber's Pocket Encyclopædic Medical Dictionary. Clarence W. Taber and Nicholas Senn 63

The Principles of Pharmacy. Henry V. Arny.. 575

The American Pocket Medical Dictionary. W. A. Newman Dorland 576

The Emmanuel Movement in a New England Town. Lyman P. Powell 510

Third Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum. Andrew Balfour 640

Thirty-fifth Annual Report of the Secretary of the State Board of Health of the State of Michigan, for the fiscal year ending June 30, 1907 64

The Climber. E. F. Benson 255

The Death of Lincoln. Clara E. Laughlin.... 256

Transactions of the Sixth Annual Conference of State and Territorial Health Officers with the United States Public Health and Marine Hospital Service 63

Transaction of the American Climatological Association for the Year 1908..... 256

Transactions of the Medical Society of London. Frederick J. Poynton and Thomas H. Kellock 254

Transactions of the Tenth Annual Meeting of the American Proctologic Society..... 254

Treatment of the Diseases of Children. Charles Gilmore Kerley 576

Tuberculosis a Curable and Preventable Disease. S. Adolphus Knopf 512

Vaccine and Serum Therapy. Edwin Henry Schorer 511

CLINICAL LECTURES.

Acne indurata. John V. Shoemaker, M.D., LL.D 289

Arthritic muscular atrophy. John V. Shoemaker, M.D., LL.D..... 481

Catarrhal jaundice. John V. Shoemaker, M.D., LL.D. 97

Diabetes mellitus. John V. Shoemaker, M.D., LL.D. 97

Epithelioma. John V. Shoemaker, M.D., LL.D. 609

Gastric ulcer. John V. Shoemaker, M.D., LL.D. 545

Influenza. John V. Shoemaker, M.D., LL.D... 673

Infantile gonorrhœal vulvo-vaginitis, aphthous stomatitis. Wm. C. Hollopeter, M.A., M.D. 673

Lupus vulgaris. John V. Shoemaker, M.D., LL.D. 161

Psoriasis. John V. Shoemaker, M.D., LL.D.... 353

Sciatica. John V. Shoemaker, M.D., LL.D..... 423

The Spirochæte pallida. Warren C. Batroff, M.D. 103

Thyrotomy for tumor of the left vocal cord, and excessive mobility of the tongue. Richard H. Johnston, M.D..... 228

Tinea versicolor. John V. Shoemaker, M.D., LL.D. 225

Typhoid fever. John V. Shoemaker, M.D., LL.D. 33

Uræmia. John V. Shoemaker, M.D., LL.D.... 737

EDITORIALS.

Advantages and disadvantages of dancing..... 115

Co-education 241

Cremation, the best method of disposal of the dead 503

Education for deficient children 375

Four thousand consumptives starve yearly..... 569

International tuberculosis exhibition 177

Microscopy and its value to the modern physician 761

Modern and Grecian athletics 48

Music as a remedial agent 568

Pellagra 633

Specific remedy in the diagnosis and therapy of urogenital tuberculosis..... 698

Strophanthus 437

The milk supply of cities..... 373

The Pinellas Peninsula, Florida 50

Vivisection and its results 307

MATERIA MEDICA AND THERAPEUTICS.

Acute mental cases, temporary treatment of. Damayne and Mezie 243

Adhesive plaster in the treatment of swelling feet. Stabsarzt Blecher..... 242

Adrenalin in infective diseases. Hoddick..... 180

Its action on the skin. G. Sardou..... 376

In the treatment of cancer. Floersheim.... 180

In intestinal hæmorrhage. C. J. Wiggers.. 376

Intravenously in collapse. B. Kothe..... 570

In tabetic crises. Roehber 635

Alcohol in the treatment of neuralgia. Alexander 117

Alloplastic substitution of the dura. Hanel... 309

Alopecia of dental origin. Rousseau Decelle. 439

Amœboic dysentery. Granville S. Hanes..... 439

Ammonium carbonate in the treatment of coryza. Beverly Robinson 117

An early symptom of phthisis—enlargement of the heart and liver. S. von Unterburger 243

Antiferment serum in the treatment of suppuration. A. Fuchs 505

Antiformin in the detection of tubercle bacilli. O. Seemann 571
Appendicitis, treatment of. Beverly Robinson. 506
Treatment of, by a new method. Jaeger..... 243
Arterial sclerosis, treatment of. Gouget..... 117
Arteriosclerosis, treatment of gastric symptoms. H. L. Aikin 506
Arthritis, severe, treatment of. A. Schawlow. 635
Artificial pneumothorax in the treatment of chronic tuberculous empyema. Wenckebach 377
Atropin in asthma. P. V. Terray..... 244
Treatment of ulcus ventriculi. D. von Tabora 244
Aural diagnosis. G. E. Shambaugh..... 310

Bier's hyperæmia method in the treatment of inflammation of the glands of Bartholin. Plass 118
Bromide and deprivation of salt in epilepsy. Jules Courmont and Crémién 53
Eruption in childhood. F. C. Knowles..... 571
Bromural in the treatment of seasickness. Prof. Ziehen 53
Bronchial affections, raising the foot of the bed in the treatment of. P. Schäfer... 377
Burns, treatment of. Renner 118

Cæsarean section, adrenalin in. Bogdanovics. 571
Calcium salts in skin diseases. Bettmann..... 572
In treatment of convulsions. Silvestri.... 54
In epilepsy. A. P. Ohlmacher..... 635
Camphor in digestive intoxicants in infants. Wurtz 700
-Naphthol in tuberculosis. Werden..... 181
Cantharides in acute nephritis. E. Lancereaux. 636
Carbon dioxide snow, uses of. M. L. Heidingsfeld 378
Carbuncle, treatment of. Max Grassmann.... 244
Cerebellar tumor, removal of. T. Diller and Otto C. Gaub 572
Tumors, treatment of. Siemerling 245
Cerium oxalate for relief of vomiting. G. Baehr and H. Wessler 245
Chloroform in hæmoptysis. Joseph B. Fish.. 440
Cholera infantum, carrot soup in treatment of. C. Beck 572
Choline in animal tissues and fluids. Mott and Halliburton 636
Congealed carbon dioxide in the treatment of angioma. Sauerbruch 246
Copper subacetate inhalation in the treatment of tuberculosis. Billard 440
Corsets for ptoses. A. E. Gallant..... 54
Coryfin, its use in colds. Baumgarten..... 119
Craniectomy for albuminuric retinitis and uræmia. Cushing and Bradley..... 181
Creosote in pulmonary tuberculosis. Beverly Robinson 637

Decapsulation of kidney for chronic nephritis. Gatti 55
Digipuratum on the circulatory system. J. Szinnyei 637
Dionin in keratitis and iritis. Chas. J. Scott. 700
Dislocation of the shoulder, reducing a. G. Schichhold 507
Dry heat in gynecology. Gellhorn 638

Effect of oxygen upon wounds and infections. Burkhardt 246
Electric treatment of asthma. Günzel 55
Electricity in ileus. F. Sejars 700
Empyema, treatment of by flushing and suction. W. Pust 378
Of the nasal sinuses, treatment of. Mortens. 378
Enemata of collargol in the treatment of septic diseases. Curt Seidel 182
Epileptic psychosis, treatment of. Siemerling. 379
Erysipelas, vaccine treatment of. G. W. Ross and W. J. Johnson 247
Ethyl chloride as an anæsthetic. A. H. Miller 573
Euquinine in the treatment of whooping-cough and typhoid fever. C. Binz 55
Eucalyptus in hæmorrhage. A. Todd-White.... 55

Facial paralysis, treatment of. F. Marsh..... 574
Faradic current in otosclerosis 574
Ferratin. Schmiedeberg 441
Fibrolysin in pleural adhesions. Schnülgen... 248
Formol in the treatment of sweating feet. Viela 55
Fracture of the patella, treatment of old. J. Rolter 119

Gastric ulcer, treatment of. Mayerele..... 574
Gelatin as an anæsthetic and as a hæmostatic. L. J. Facio 119
And salt solution infusions in typhoid hæmorraghe. Witthauer 56
In therapeutics. O. Wandel 638
Gelsemium. Wm. Henry Morse 182
General anæsthesia by the rectum. Dumont.. 183
Genital tuberculosis, treatment of. F. J. McCann 248
Glycerin extract on liver in alcoholic cirrhosis. Jacques Carles 56
Guaiacol as an anæsthetic and antiphlogistic. Hecht 701
Gunshot wounds of the head, treatment of. Paul F. Eve 701

High frequency currents in tabes dorsalis. Nagelschmidt 120
In the treatment of enlarged prostate. Hunter 57
Hot air in the treatment of acute inflammations. Jselin 57
Iodin lavage of the infected puerperal uterus. Ortali 120

Irrigations in the treatment of venereal Ulcers. Zinsser 57
Solutions of boric and salicylic acid in the treatment of carbuncles. Grassman.... 58
Hydrocephalus, chronic idiopathic internal, cured by draining the ventricle. Halben. 379
Hydrocyanate of iron 442
Hydrogen peroxide in medicine. E. Friedlander 249
Hyperæmia in the treatment of chilblains. C. Ritter 58
Treatment in gynecology. A. Stein 120
Hypertrophied prostate, treatment of. Hilderbrandt 121
Hypodermics of iron in anæmia. Leroy F. Peters 58
Hypophysis extract upon the blood-vessels. Pal 638
Hysteria, treatment of 701

Indoxyluria in mental diseases. G. Pardo..... 183
Infantile meningitis, treatment of. Roque Macouzet 249
Ingrown toe-nails, treatment of. W. Stoeckel. 380
Injections of salt solution in sciatica. D'Orsay Hecht 121
Injection treatment for hæmorrhoids. Edwin A. Hamilton 701
Insomnia in heart disease, treatment of. F. J. Wethered 249
Intoxication with chloroform, treatment of. K. Wirth 311
Intraoral cancer, operative treatment of. C. P. Childe 280
Iodin in surgical tuberculosis. W. A. Tatchell. 311
An antidote in phenol poisoning. Maberly.. 183
Iodipin, uses of. E. Lustwerk 639
Iodifin in eye affection of luetic origin. W. Zimmerman 311
Iodoform and ichthyol in pulmonary tuberculosis. Samuel Floersherm 702
Isporal in cardiac affections. Peters..... 122

Keloids, injections of fibrolysin in the treatment of. R. E. Brennan 122

Laparotomy in the treatment of gangrenous hernia. F. Hesse 184
Lipoid substances in the treatment of tetanus. Bockenheimer 184
Liquor hydrargyri perchloridi in treatment of diarrhœa. Faichnie 123
Lumbar puncture in injuries of the head. P. Savy 702

Magnesium sulphate in tetanus. Miller 123
Mastitis, treatment of. Feinen 311
Maxillary readjustment. G. V. I. Brown..... 381
Meningococcal serum in epidemic meningitis. Lange 381
Meningeal, sinus and labyrinthine complications, treatment of. S. MacCuen Smith. 507
Meningitis, treatment of, by urotropin. S. J. Crowe 508
Mercurial treatment in syphilis. E. C. Hay... 703
Moles and more or less extensive nevi, Tesla current in the treatment of. Aspinwall Judd 382
Movable kidney, treatment of. A. B. Bevan... 250
Mustard packs in bronchitis. A. A. Herzfeld..442
Mercury in infectious and contagious diseases. H. E. Jones 185
Mercury in tuberculosis. B. L. Wright..... 58
Methylene-blue for fissured nipples. Dresh... 59

Neuroprin in nervous diseases. Roasenda.... 382
New noses in twenty minutes, new process for. H. R. Allen 443

Obesity, principles for treatment of. Kisch. 443
Oil in the treatment of stomach affections. Rütimeyer 59
Operative treatment of ascites to hepatic cirrhosis. Bogojawlensky 312
Of puerperal peritonitis and thrombophlebitis. Leopold 185
Orthostatic albuminuria. Jehle 250
Osmic acid in trifacial neuralgia. H. H. Germain 313
Osteotomy of the cuneiform for hallus valgus. R. Reidl 762
Oxygen insufflation for revival of newborn. Cavazza 124
Oxygen in puerperal infection. Reynier..... 59
Oxygen in tuberculous peritonitis. S. A. McGlinn 186

Pancreas diabetes, treatment of. Bruck..... 124
Paraffin for incontinence of urine. Fabre and Trillat 60
Paralysis of the shoulder, mechanical treatment. David Silver 251
Pernicious anæmia, treatment of. Byron Bramwell 251
Phlegmons of the hand, with hot-air baths, treatment of. H. Iselin 508
Physostigmin in postoperative ileus. Goth. 124
Picrotoxin. William F. Waugh 187
Phosphorus as a brain food. W. Koch..... 444
Pilocarpine in the laryngeal obstruction of measles. A. Montefusco 60
Pineapple as a medicine 187
Placenta prævia, treatment of. W. Hannes.. 313
B. Krönig 509
Pokeberry poisoning. Lester 444
Potato diet in obesity. G. Rosenfeld..... 639
Postoperative treatment. O. D. Hamlin..... 313
Prophylaxis in epidemic cerebrospinal meningitis. Seibert 314
Protargol in the treatment of ophthalmia neonatorum. Motais 444
Purulent peritonitis, treatment of. N. Gulcke. 762
Pyrenol in the treatment of asthma and emphysema. Boellke 314

Quinine in cholera. Ussher 60

Radium, its therapeutic applications. Wickham and Degrais 445
Treatment of Angiomata 60
Radical operation for umbilical hernia. Martin. 187
Rheumatism, treatment of. N. S. Davis..... 251
Rubber elastic bands for drainage. E. Stanley Ryerson 763
Ruptured kidney, treatment of. Morestin..... 315

Sabromin, a new bromide preparation. V. Mering 252
Saline injections in the treatment of sciatica. J. Flesch 252
Salt in the treatment of internal hæmorrhage. Von Den Velden 315
Scapulopexy in myopathy. Panchet 763
Scarlet fever, treatment of. Gordon..... 316
Scissors-magnet extraction of foreign bodies from the eyeball. E. Jackson 446
Scopolamin-morphin anæsthesia. C. M. Nicholson 383
Serotherapy in the treatment of post-diphtheritic paralysis. G. E. Schneider and L. A. Vandeuvre 188
Severe hæmorrhage, suture of the lung for. Lotsch 446
Silver nitrate in infections. A. Schatsky and N. Grjasnow 61
Sodium chloride in internal hæmorrhage. R. von den Velden 764
Sodium cinnamate in tuberculosis. Reynier and Bluson 125
Sodium salicylate in rheumatism. Stockman. 188
Sodium nucleinate in acute infections. Laine. 189
Soy bean in infant feeding. J. Ruhräh..... 704
Spirosal for rheumatism. Otto Lehmann..... 61
Strychnine in paralyzed limbs. W. Steele..... 125
Styptol in the treatment of dysmenorrhœa and uterine hæmorrhages. F. Girardi 446
Sulphuric acid in carbuncles, boils, etc. J. and R. J. Reynolds 61
Suppuration of renal pelvis and ureters, treatment of, by lavage. Garceau..... 447
Of the accessory sinuses, treatment of. Martens 764
Subacute alcoholism, treatment of. Robin.... 509
Suction hyperæmic treatment of gynecologic affections. Seeligman 189
Superficial pneumococcal affections. V. Morax. 316
Sweating feet, treatment of..... 126
Syphilis of the nervous system, treatment of. G. Köster 317
Of the upper respiratory tract, treatment of. Livien 447

Tamponing in the treatment of prolapse of rectum. Sick 764
The knee-joint, surgical conditions of. Tenney. 317
X-rays in epithelioma. G. E. Pfahler..... 126
Typhoid fever, treatment of. J. D. S. Davis.. 320
Treatment of ichthyosis. Weill and Mouriquand 317
Treatment of aneurysm of the neck. Guinard. 318
Of appendicitis in pregnancy. Rudaux..... 190
Of asthma. Treupel 189
Of children suffering from rheumatism or chorea. D. B. Lees 318
Of chronic endometritis. J. H. Rector..... 190
Of gastric ulcer. Borgbjaerrg 62
Of inoperable carcinoma of the uterus. Freund 190
Of quinsy. D. J. Guthrie 764
Traumatic injuries of the extremities, their treatment. Walter T. Dannreuther.... 510
Tubal disease, treatment of. Palmer Findley. 316
Tuberculin treatment for infants and children. A. Schlossman 319
Of pulmonary tuberculosis. P. K. Pel..... 765
Tuberculosis, tuberculin-arsenic treatment of. Mendel 320
Tuberculous affections of hip joint, treatment of. König 448

Unmodified sunrays in treatment of lupus vulgaris. J. Goodwin 191
Use of colloidal silver in the treatment of puerperal infection. Cyrille Jeannin..... 191
Uterine hæmorrhage, treatment of, with serum. W. Busse 448

Vaccine in Bronchial asthma. D. W. Cormalt-Jones 765
Vaginal and Cæsarean section, technique and indications for the. Dührssen 383
Cæsarean section, technique. A. Dührssen... 575
Varicose veins of the leg, treatment of. J. E. Jennings 510
Veronal in the insomnia of mental diseases. Salluste Roy 62

Whooping-cough, treatment of. Czerny..... 253
Wood cure for chronic constipation. Bluemland Ulrich 253

X-rays for prostatic concretions. Gosta Forrsell 766

Zinc ions in the treatment of ophthalmia neonatorum. H. K. Ramsden 62
Permanganate. W. A. Puckner and W. S. Hilpert 253

MISCELLANEOUS.

Greater New York number 127
The American Society for the Study of Alcohol and other Narcotics 127

ORIGINAL ARTICLES.

Action of glandular extracts upon the pupil. Isaac Ott, M.D., and John C. Scott, M.D. 493

Acute retention of urine from impaction of a phosphatic calculus in the penile urethra, and a fatal case of beriberi. Frank T. Woodbury, M.D..... 304

Aids to successful results in the Bassini operation for the radical cure of hernia. Ernest E. Laplace, M.D..... 47

American Proctologic Society abstracts—reported by Lewis H. Adler, Jr., M.D..562, 626

A question in therapeutics. Brose Horne, M.D. 425

A study of contemporary workmen's compensation. W. H. Allport, M.D..... 612

Baldness. M. L. Ravitch, M.D..... 111

Conclusion in regard to tubercular ureteritis. Byron Robinson, M.D..... 356

Erysipelas: Its etiology, symptoms, complications, and a new and successful method of external treatment. Lucien C. Davis, M.D. 293

Fractures of the patella and their modern operative treatment. Aime Paul Heineck, M.D. 751

Headaches and their treatment. Guthrie Rankin, M.D..... 548

Light energy in the treatment of disease. J. Frank Wallis, M.D..... 681

Medical and surgical testimonials on the mummy grove potteries of Old Peru. Albert S. Ashmead, M.D.....690, 742

Medical missions. R. C. Thomas, M.D..... 41

Medico-legal. E. S. McKee..108, 434, 557, 662, 678

Observation on the effect of tasteless cold storage chicken, used as a food. Ephraim Cutter 437

Obstetrics and gynecology. E. S. McKee, M.D. 238

Painful heel. C. F. Wahrer, M.D..... 739

Personal observations of a case of paralysis agitans (shaking palsy), Parkinson's disease, with multiple complications. T. G. Stephens, M.D. 631

Practical analysis of the gastric contents. Edward C. Hill, M.D. 371

Preventive medicine. A. J. Burgholder, M.D. 291

Principles of the modern treatment of gonorrhœa. Joseph L. Boehm, M.D..... 362

Prophylaxis of gonorrhœa. Thomas W. Rose, M.D. 237

Report of two cases of intestinal obstruction complicating advanced pregnancy; operation; recovery. John A. McGlinn, A.B., M.D. 430

Severe types of typhoid fever, with management and treatment. B. L. Hale, M.D. 486

The antidotal effects of alcohol upon phenol. Harry J. Novack, M.D..... 495

The borderland of success—The importance of careful attention to details in eye and ear work. L. Haines Buxton, M.D..... 483

The cancer problem. John A. McGlinn 230

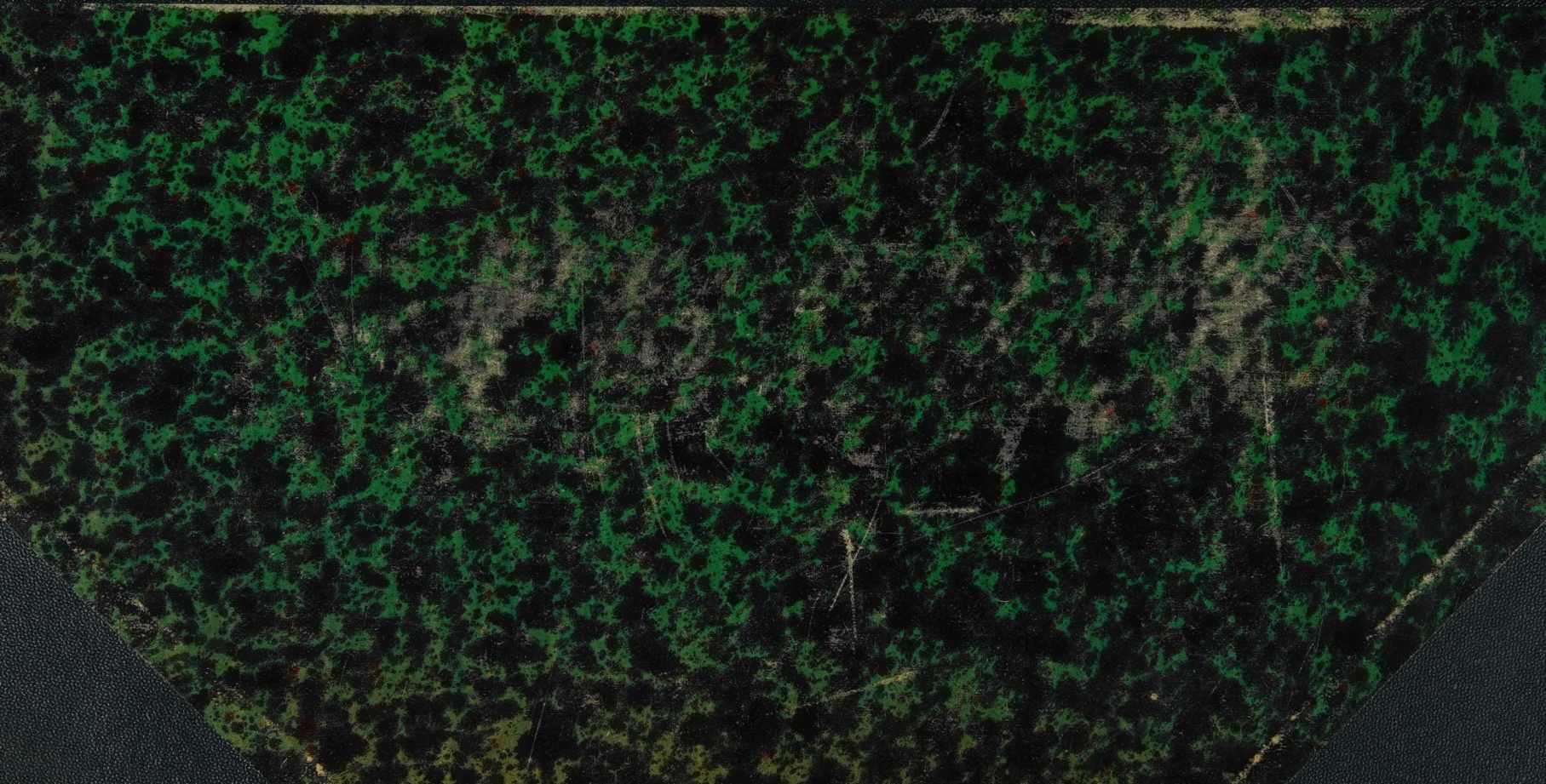
The claims of psychology and allied branches in modern medicine. Charles B. Hardin, M.D. 298

The efficiency and sufficiency of the United States Pharmacopœia and National Formulary preparations for the general practitioner. James M. Anders, M.D., LL.D. 164

The revision of the laws relating to child labor, by means of the Roentgen ray. Thomas Morgan Rotch, M.D..... 369

The symptomatology and diagnosis of the enlarged prostate. H. M. Christian, M.D. 44

Tuberculosis of the breast. William F. Rodman, M.D., LL.D..... 173

Uterine moles, with special reference to the hydatiform mole. J. S. Raudenbush, M.D. 167

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